SL-C6ES

SERVICE MANUAL

710 CHASSIS

September, 1982

Refer to separate operation manual, Part number 9-972-151-02.

SPECIFICATIONS

System

Video recording system	Rotary two-head helical scanning
Video signal	CCIR standards, PAL colour
Aerial input	75-ohm, asymmetrical aerial socket
Sound system	West Germany ZWEI-TRÄGER (two carrier) system
Channel coverage	VHF : Western European channels 2 - 12 UHF : Western European channels 21 - 68 (Up to 10 channels can be preset.)
RF output signal	UHF channels 30 to 39 (variable) 75 ohms, unbalanced

Video

Input	VIDEO IN : BNC connector 1.0 V (p-p) $^{+1.0}_{-0.5}$ V (p-p) 75 ohms, unbalanced, sync negative
Output	VIDEO OUT : BNC connector 1.0 V (p-p) ±0.1 V (p-p) (Playback mode) 75 ohms, unbalanced, sync negative
Horizontal resolution	Colour : 260 lines B/W : 260 lines
Signal-to-noise ratio	Colour : Better than 40 dB B/W : Better than 43 dB

Audio

Input	AUDIO IN : phono jacks 47 kilohms, −10 dBs (0 dBs = 0.775 V rms) MIC : minijack −60 dBs, suitable for microphone with 600-ohm impedance
Output	AUDIO OUT : phono jacks Load impedance less than 10 kilohms −5 dBs with 47 kilohms load unbalanced
Frequency response	50 Hz - 10 kHz
Signal-to-noise ratio	43 dB (BNR ON)
Audio distortion	Less than 4% at 400 Hz

Video/Audio

Output	6-pin DIN connector

Tape transport

Tape speed	18.73 mm/sec.
Maximum recording time	2 hours 10 min. (with Sony L-500 cassette) 3 hours 15 min. (with L-750)
Fast forward/rewind time	Within 4 min. (with L-500)

Timer

Clock	Synchronized with the power frequency
Control time	24-hour cycle
Timer setting	Only for recording 1 event/week, adjustable for any day or for all 7 days of the week

— continued on page 2 —

Beta

VIDEOCASSETTE RECORDER

SONY®

MICROFILM

Consumer VIDEO

General

Power requirements	220 or 240 V ac ±10%, adjustable 50 Hz
Power consumption	55 W
Storage temperature	−20°C to +65°C (−4°F to +149°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	Approx. 460 × 168 × 383 mm (w/h/d) ($18^{1}/_{8} \times 6^{5}/_{8} \times 15^{1}/_{8}$ inches) including projecting parts and controls
Weight	Approx. 14.5 kg (32 lb)
Accessories supplied	75-ohm coaxial cable (for connecting recorder to TV) .... 1 Channel presetting label .... 1 Video monitor cable VMC-366 (6-pin DIN connector to 6-pin DIN connector) 1
Optional accessories	Remote control unit RM-72 Video monitor cable VMC-368 (6-pin DIN connector to 8-pin connector)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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ADJUSTMENT MANUAL

SECTION 1
GENERAL

1-1. WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

1-2. OPERATING VOLTAGE

Before connecting the unit to a power source, check that the voltage selector located at the rear is set to your local mains power voltage. The operating voltage can be set to 220V or 240V ac.
If the selector must be reset, turn the selector with a screwdriver or similar object so that the triangle points to the appropriate voltage.

1-3. PRECAUTIONS

On safety

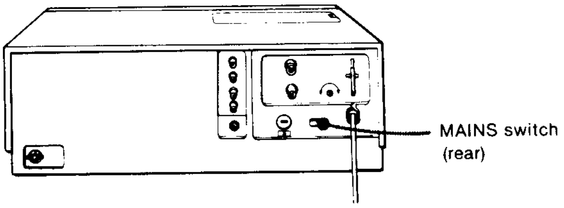
- Before connecting the unit to the power source, check that the voltage selector located at the rear is correctly set to your local power line (mains) voltage.
- Do not attempt to make any of the adjustments at the small holes in the rear of the unit. These are special adjustments to be performed only by qualified personnel.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead (ac power cord), pull it out by the plug. Never pull the lead itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as an electronic oven, large loudspeakers, etc.
- Do not place any heavy object on the unit.

On operation

- This unit should not be operated for two hours after being transported from a cold to a hot environment to avoid condensation from forming on the head drum. Condensation can cause the tape to stick to the head drum, resulting in damage to the tape.
- When the unit is not to be used for a long period of time, turn the power off to conserve energy and to extend the useful life of your unit. If you turn off the MAINS switch located at the rear, the entire circuit power, including the clock section, will be shut off.



- After playing a tape, remove the cassette from the unit. Do not transport the unit with a cassette in place.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or soft cloth lightly moistened with mild detergent solution. Do not use any type of solvent such as alcohol or benzine which may damage the finish.

On repacking

Do not throw away the carton and packing materials. It is an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton box.

On colour broadcasting systems

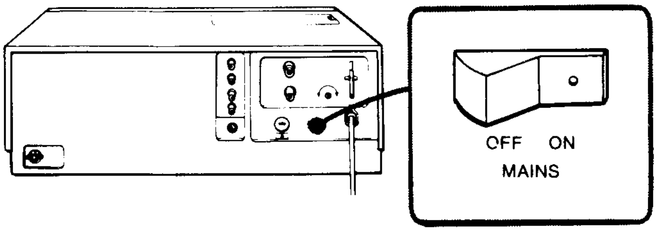
This machine is designed to record and play back using the PAL colour standard. Recording and playback of video sources based on other colour systems cannot be guaranteed.

If you have any questions about this unit, contact your Sony dealer.

1-4. SYSTEM CONNECTIONS

Cautions

- Unplug the TV from the mains outlet before making the following connections.
- Reconnect the mains lead and set the MAINS switch to ON after all the other connections of the video cassette recorder and the TV have been completed.



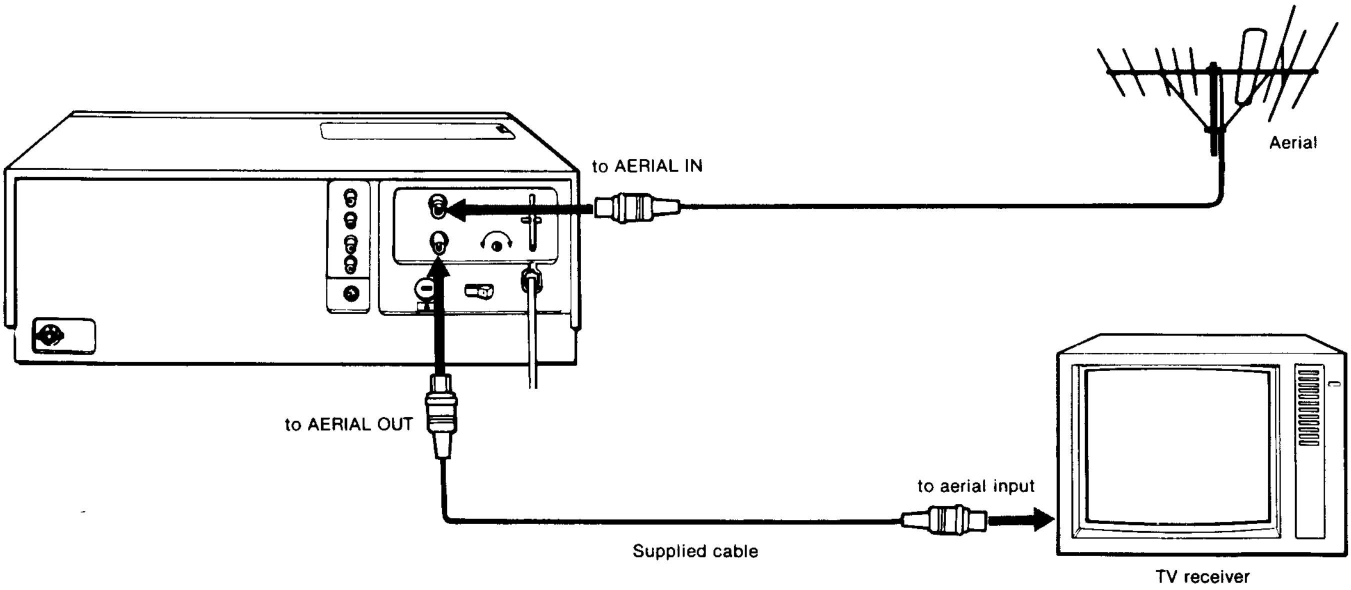
- Make sure the connections are secure. A loose connection may cause a noisy picture.

Notice for customers in strong signal area
This recorder has a booster to assure stable TV reception on the recorder and on the TV. However, in areas near the TV station, where the TV signal is very strong, the picture may be affected by the booster. If this happens, connect a commercially available attenuator to the aerial lead-in wire. For details, consult your nearest Sony dealer.

CONNECTING TO THE TV

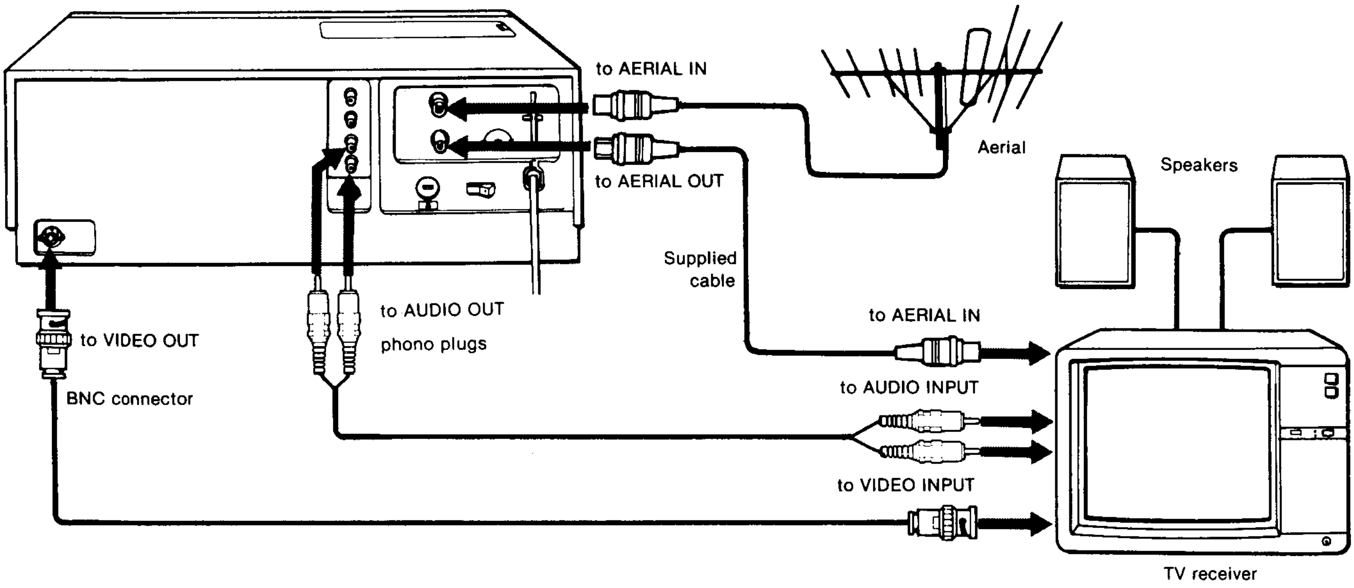
First remove the aerial cable from its socket in the back of the TV and connect it to the AERIAL IN socket at the rear of the recorder. Then connect the other cords as follows.

A **Connecting a conventional TV**
Even if you use a stereo TV, the playback of a stereo sound tape will be monaural.



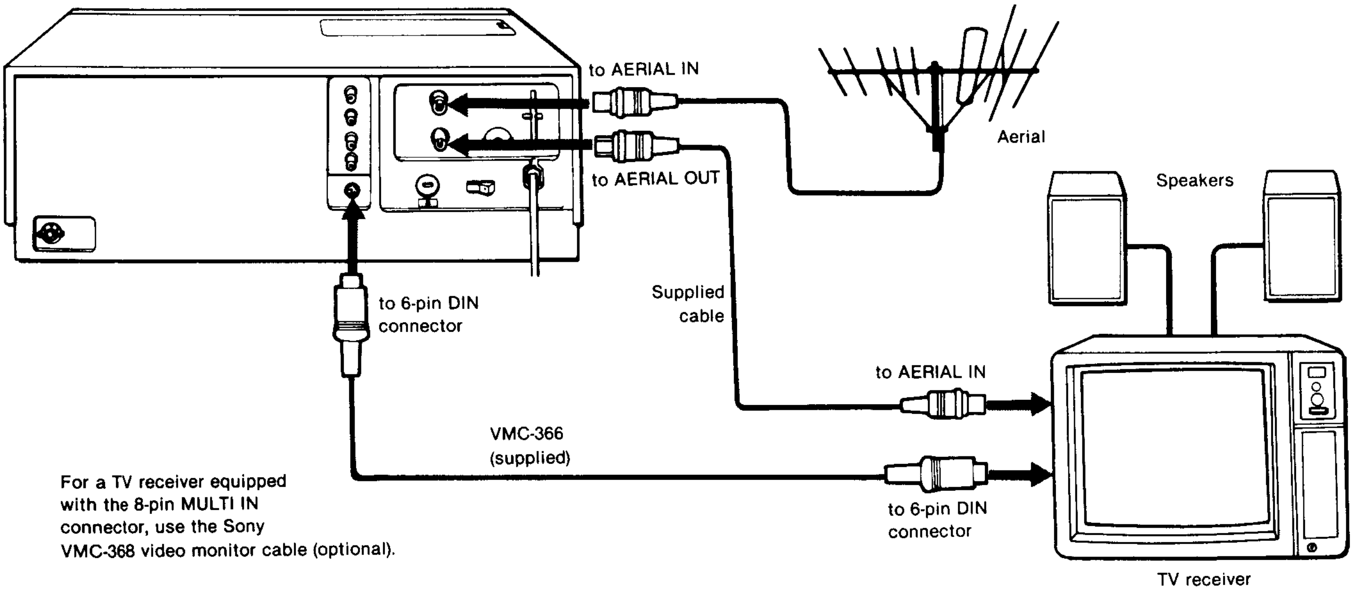
B Connecting a TV equipped with AUDIO and VIDEO INPUT jacks.

You can enjoy recording and playing back of the stereo-sound or dual-sound programmes.


to AERIAL IN
to AERIAL OUT
Aerial
Speakers
Supplied cable
to AERIAL IN
to AUDIO OUT
phono plugs
to VIDEO OUT
BNC connector
to AUDIO INPUT
to VIDEO INPUT
TV receiver

C Connecting a TV equipped with a multiplex connector

The video and audio signal connection to the TV can be made by a single video monitor cable. You can enjoy recording and playing back of the stereo-sound or dual-sound programmes.


to AERIAL IN
to AERIAL OUT
Aerial
Speakers
to 6-pin DIN connector
Supplied cable
to AERIAL IN
VMC-366 (supplied)
to 6-pin DIN connector
TV receiver

For a TV receiver equipped with the 8-pin MULTI IN connector, use the Sony VMC-368 video monitor cable (optional).

Note

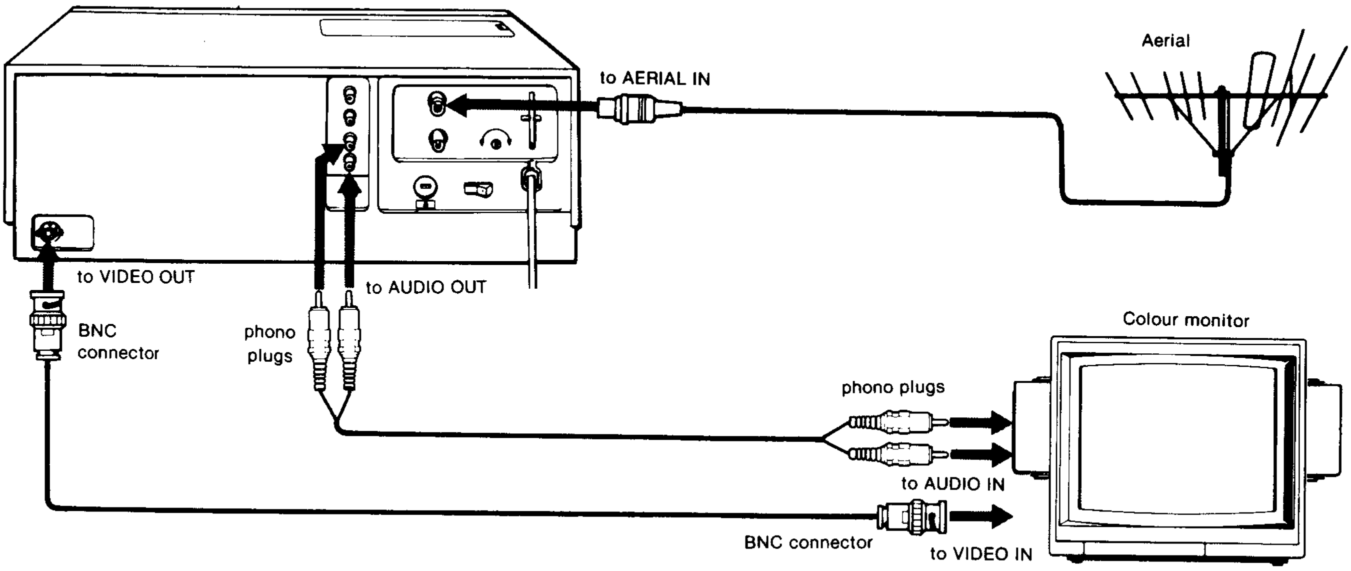
Do not simultaneously make B connection and C connection.

After completing the appropriate connection, see the operation of instructions with the same mark (A , B or C) as the connection you have made.

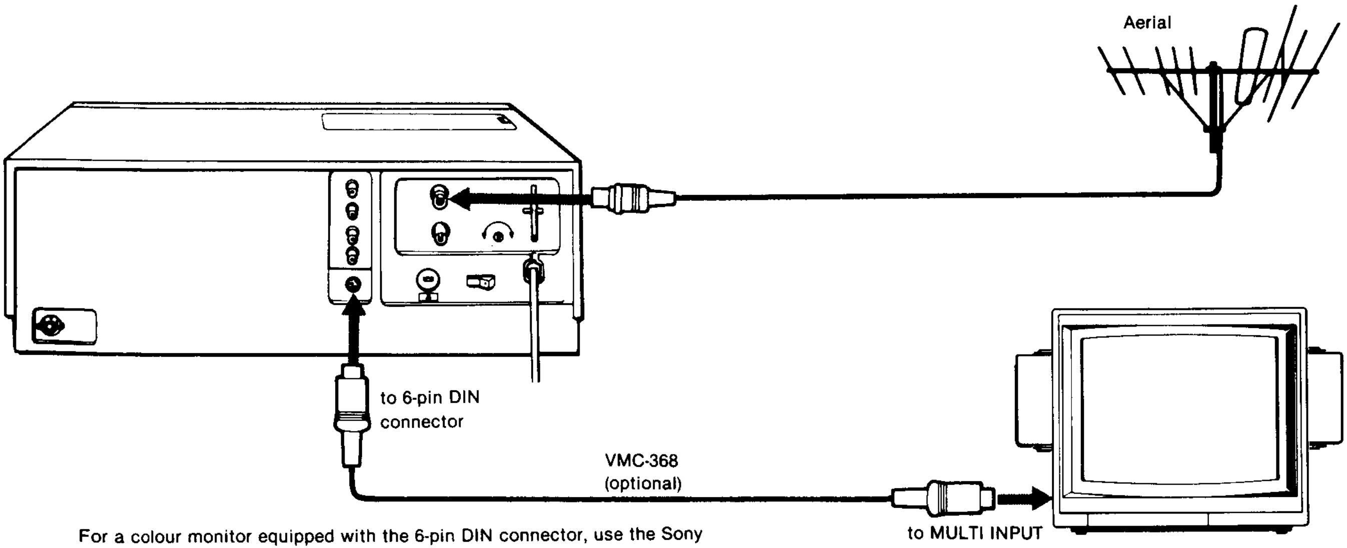
CONNECTING TO A COLOUR MONITOR

To obtain a higher-quality picture, connect the unit to a colour monitor instead of a conventional TV receiver. The aerial should be connected to the recorder in the same way as a conventional TV.

Using the AUDIO OUT jacks and VIDEO OUT connectors


Aerial
to AERIAL IN
to VIDEO OUT
to AUDIO OUT
BNC connector
phono plugs
Colour monitor
phono plugs
to AUDIO IN
BNC connector
to VIDEO IN

Using the 6-pin DIN connector


Aerial
to 6-pin DIN connector
VMC-368 (optional)
to MULTI INPUT (8-pin) connector

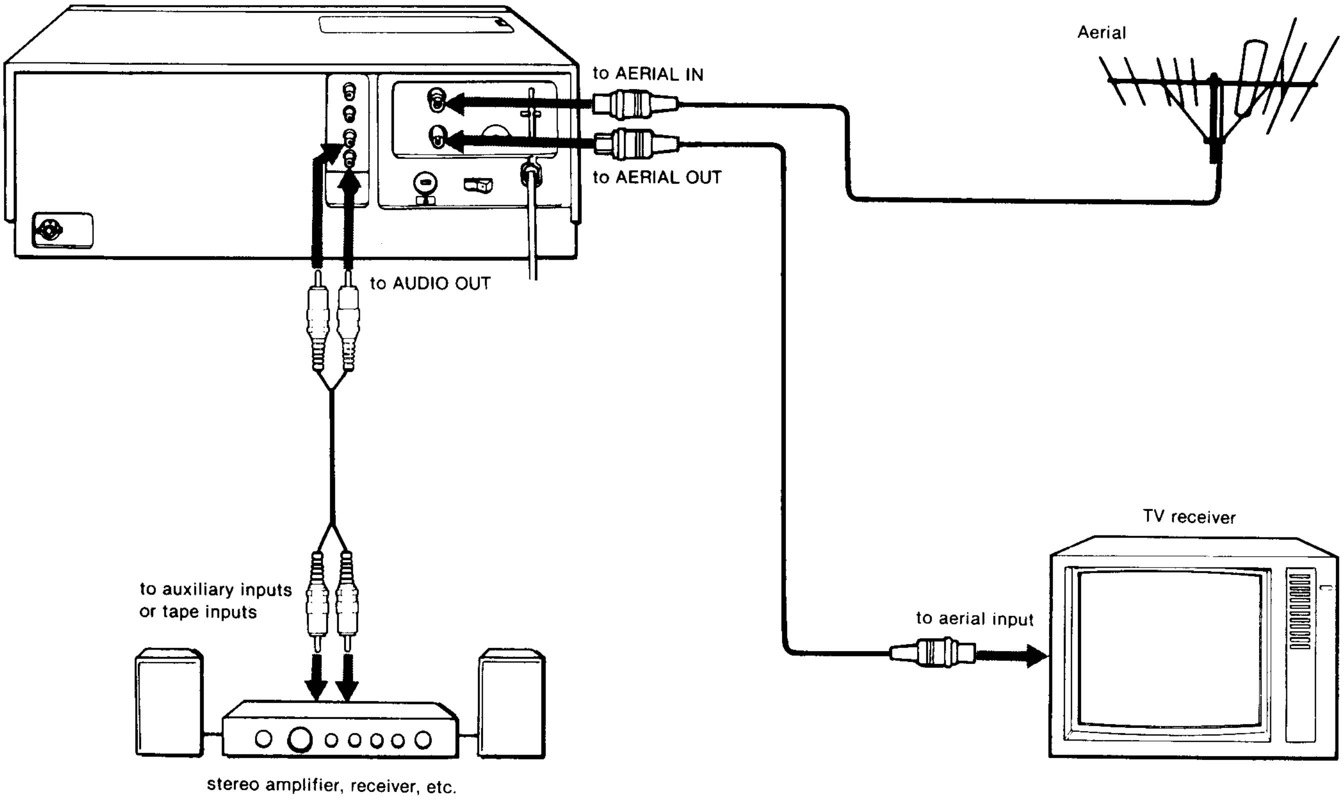
For a colour monitor equipped with the 6-pin DIN connector, use the Sony VMC-366 video monitor cable (supplied).

Notes

- Do not simultaneously make DIN cable connection and phono cord connection.
- When using a colour monitor, set the TV/VTR select button on the VTR to VTR.

CONNECTING TO AN AUDIO SYSTEM

You can enjoy the stereo sound of the video tapes through your audio system even if your TV receiver is a conventional type. Set the TV/VTR select button on the VTR to VTR.

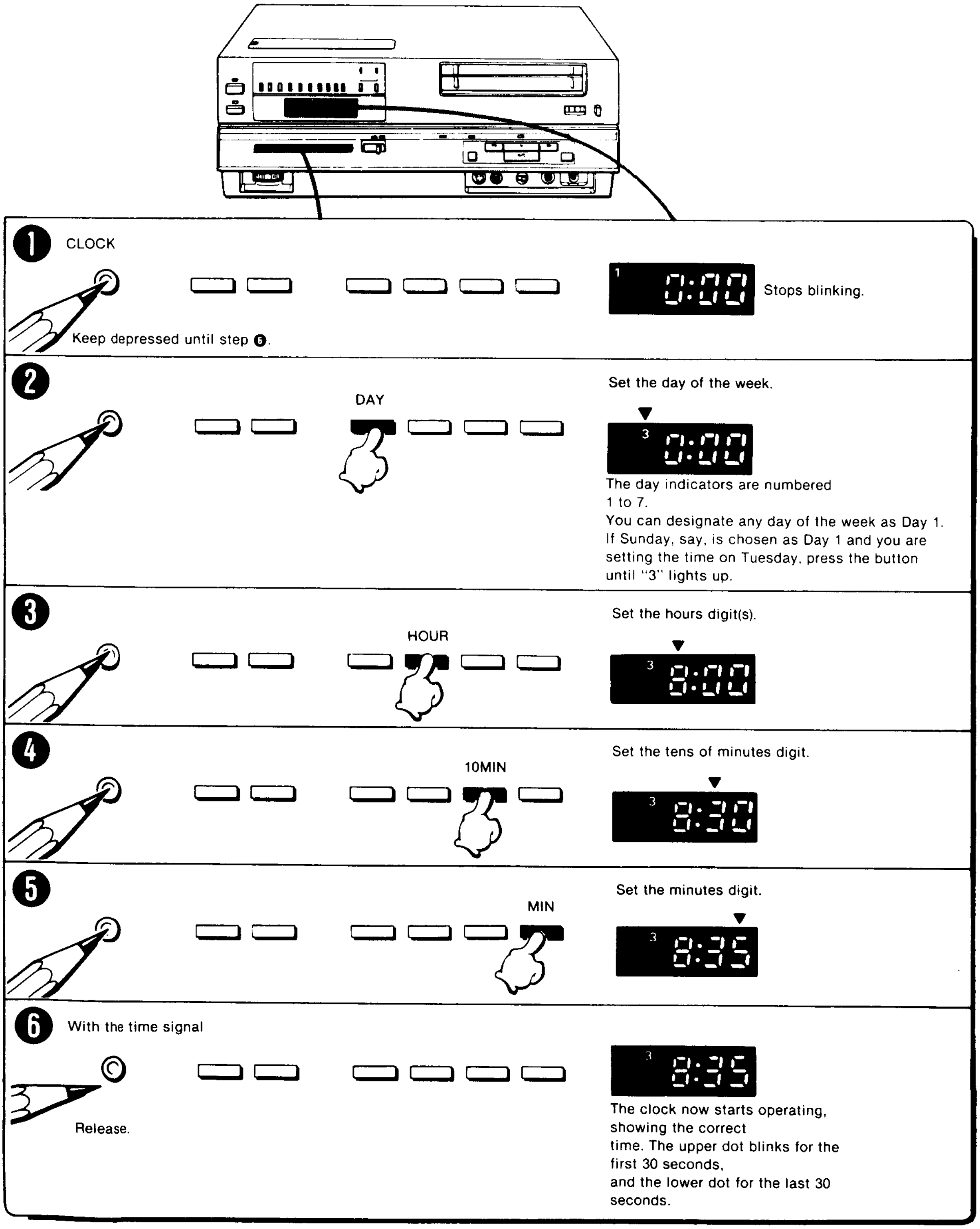

Aerial
to AERIAL IN
to AERIAL OUT
to AUDIO OUT
TV receiver
to aerial input
to auxiliary inputs or tape inputs
stereo amplifier, receiver, etc.

Note

Do not simultaneously make DIN cable connection and phono cord connection.

1-5. SETTING THE CLOCK

When you set the MAINS switch to ON after connecting the mains lead (ac power cord) to a wall outlet, the clock indicates "0 : 00" and blinks to show that it must be set.
To set the clock to 8 : 35 a.m. on Tuesday, for example, proceed as follows :



❶ CLOCK

Keep depressed until step ❻.

Stops blinking.

❷ Set the day of the week.

The day indicators are numbered 1 to 7.
You can designate any day of the week as Day 1. If Sunday, say, is chosen as Day 1 and you are setting the time on Tuesday, press the button until "3" lights up.

❸ Set the hours digit(s).

❹ Set the tens of minutes digit.

❺ Set the minutes digit.

❻ With the time signal

Release.

The clock now starts operating, showing the correct time. The upper dot blinks for the first 30 seconds, and the lower dot for the last 30 seconds.

Setting the day(s), hours and minutes digits
The DAY, HOUR, 10MIN and MIN buttons can be pressed in two ways :

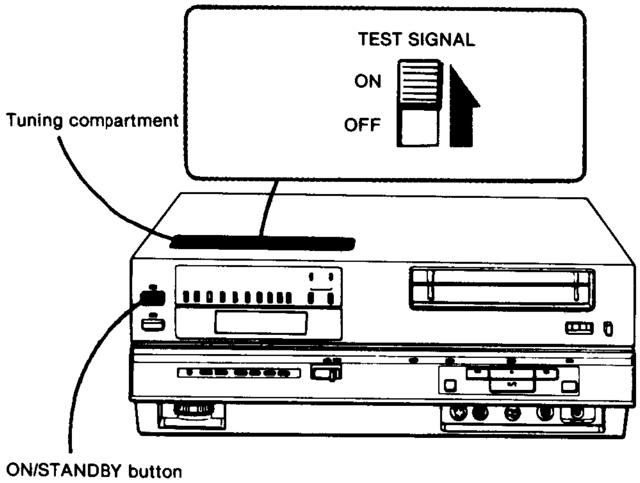
When you hold a button down, the digits will advance continuously until the button is released.

When you press and immediately release a button, the digits will advance by one.

1-6. TUNING THE TV AND THE RECORDER

TV ADJUSTMENT

❶ Press the ON/STANDBY button of the recorder to turn the recorder on.



❷ Open the tuning compartment lid and set the TEST SIGNAL switch to ON.

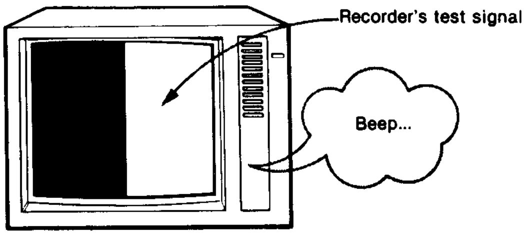
❸ A **When a TV is connected to the AERIAL OUT socket only**
Turn on the TV.

B **When using a TV equipped with AUDIO and VIDEO INPUT jacks**
Turn on the TV and set the TV/VTR (input) select button on the TV to TV.

C **When using a TV equipped with a multiplex connector**
Turn on the TV and set the TV/VTR select buttons on both TV and VTR to TV. (Your TV may be automatically switched to the TV mode.)

❹ Select a channel on the TV which is not used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a high-pitched tone. This is the recorder's test signal.

— If all the channels on your TV are used for receiving stations, select the channel you watch least.
— If you are not sure how to tune your TV, please refer to the TV's instruction manual or consult your dealer.



❺ If the test picture is free of disturbance, set the TEST SIGNAL switch to OFF.

If the test picture is not free of disturbance

There might be interference. To receive the recorder's signal on your TV without interference, proceed as follows:

❶ Reset the TEST SIGNAL switch in the tuning compartment to OFF.

You will probably see interference or perhaps even a TV programme on the TV screen.

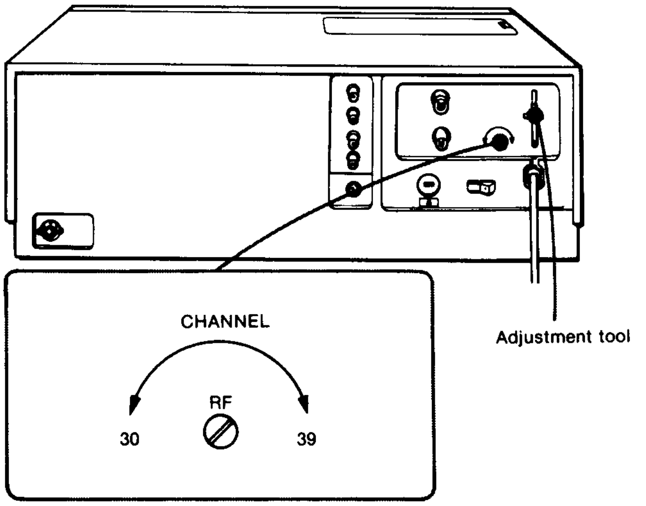
❷ Adjust the channel of the TV to a channel between UHF 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound is heared.

❸ Set the TEST SIGNAL switch to ON again.

❹ Slowly turn the RF CHANNEL screw on the back of the recorder until you see an undistorted test picture on the TV screen.

You can use the adjustment tool located to the right of the RF CHANNEL screw hole to turn the screw.

❺ Reset the TEST SIGNAL switch to OFF.

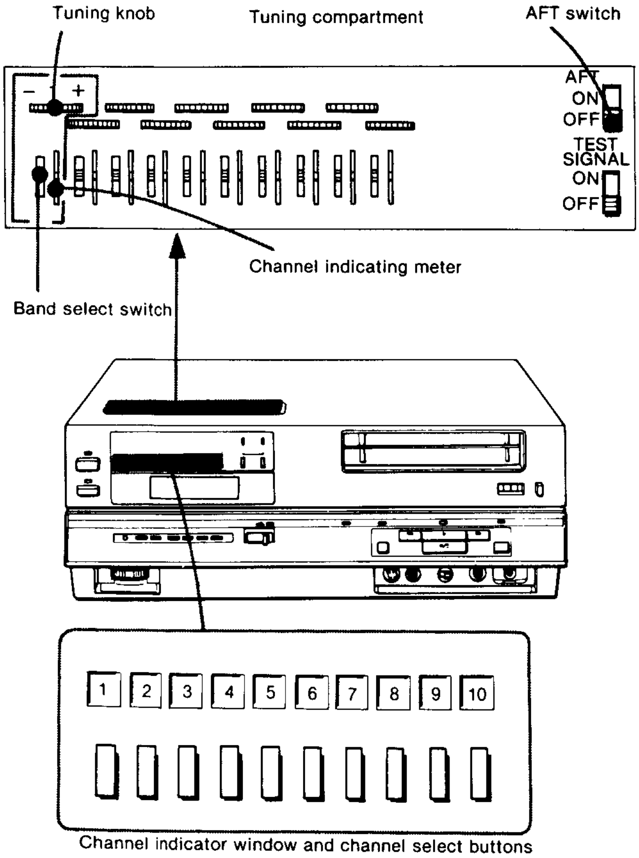


Now your TV receiver is tuned to the recorder. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

RECORDER CHANNEL PRESETTING

Once you have tuned your TV to the recorder, the next step is to tune the recorder to all the TV stations that you can receive in your area. Up to 10 TV stations can be preset in any order.

Location of the tuning controls



Channel indicator window and channel select buttons

Presetting procedure

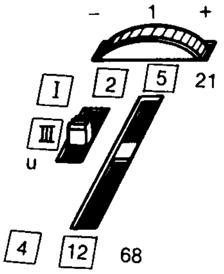
❶ A **When a TV is connected to the AERIAL OUT socket only**
Turn on the TV and the recorder, and select the channel on the TV for the recorder.

B **When using a TV equipped with AUDIO and VIDEO INPUT jacks**
Turn on the TV and the recorder, and set the TV/VTR select buttons on both TV and VTR to VTR.

C **When using a TV equipped with a multiplex connector**
Turn on the TV and the recorder, and set the TV/VTR select buttons on both TV and VTR to VTR. (Your TV may be automatically switched to the VTR mode.)

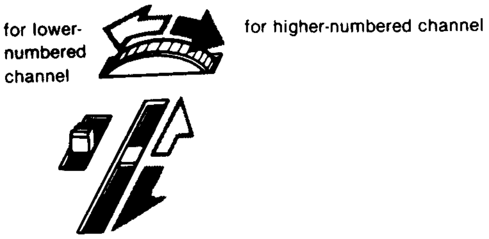
❷ Check that no lines are connected to the AUDIO IN jacks, VIDEO IN connector or MIC jack.
❸ Open the tuning compartment lid and set the AFT switch to OFF.
❹ Press the channel select button to be preset. The corresponding channel indicator lamp will light.
❺ Set the band select switch for that button to one of the three positions:

to tune in channels 2 through 4 .... set to I
to tune in channels 5 through 12 ...... set to III
to tune in channels 21 through 68 ...... set to U



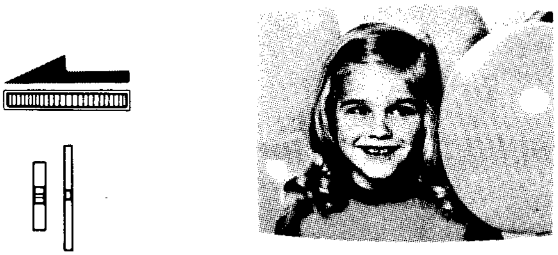
❻ Turn the tuning knob until the desired station is properly tuned in.

The channel indicating meter provides a visual indication of the approximate location of the tuning knob within the operating range of the band select switch.



When the picture appears, slowly turn the tuning knob to the right until a herringbone pattern appears in the coloured part of the picture, then turn the knob back until the picture is perfectly clear.

Turn the knob to the right until the herringbone pattern appears.



Turn it in the opposite direction until the herringbone pattern just disappears.

❼ Repeat steps ❹, ❺ and ❻ for all the other channels.

To identify the channels, consult a newspaper or TV programme guide.

❽ Set the AFT switch to ON when all the stations have been set up, then close the lid of the tuning compartment.

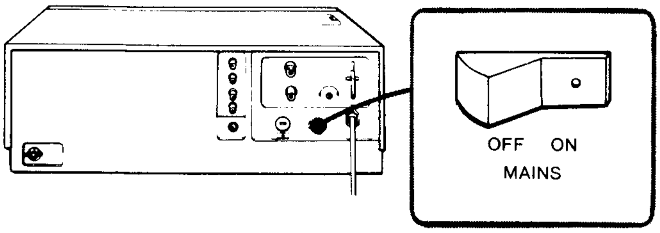
You can now fully utilize the recorder without ever having to touch this compartment again.

Your video system is now ready to record TV programmes and to play back recorded materials.

1-7. TURNING THE RECORDER ON AND OFF

Normally, keep the MAINS switch ON and turn the recorder on and off with the ON/STANDBY button.

The MAINS switch is the mains power on/off switch.
When this switch set to OFF, the power supply to all sections in the machine, including the clock section, will be shut off and the timer memory will be erased.
The TV will not operate in this situation, because the TV signal will not be fed to the TV.
If you keep this switch set to ON, the clock section will be always powered and the other sections can be turned on and off with the ON/STANDBY button.



1-8. WATCHING TELEVISION

Before operation

●Make sure that the TIMER REC button on the recorder is not depressed.

●Make sure that the MAINS switch on the recorder is set to ON and the ON/STANDBY button is in the standby mode.

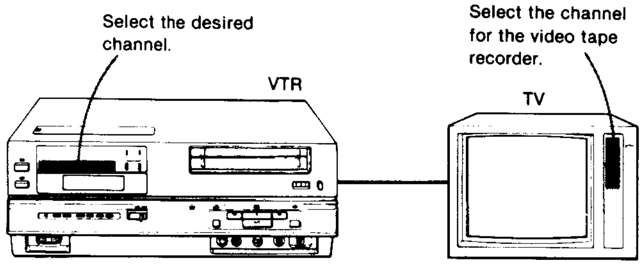
A WHEN A TV IS CONNECTED TO THE AERIAL OUT SOCKET ONLY

Channel selection on the TV

Turn on the TV and select the desired channel with the channel select button on the TV.

Channel selection on the VTR

1 Turn on the TV and select the channel for the video tape recorder.
2 Turn on the VTR and select the desired channel with the channel select buttons on the VTR.


Select the desired channel.
Select the channel for the video tape recorder.
VTR
TV

Even if you use a stereo TV, the playback of a stereo sound tape will be monaural.

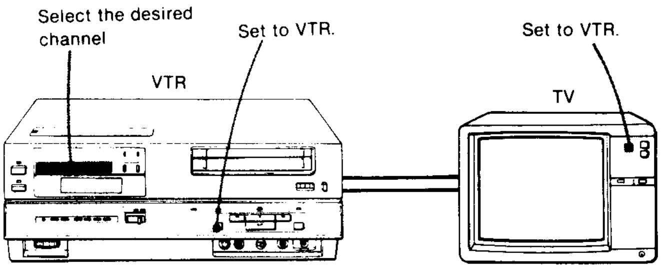
B WHEN USING A TV EQUIPPED WITH AUDIO AND VIDEO INPUT JACKS

Channel selection on the TV

1 Turn on the TV and check that the TV/VTR (input) select button on the TV is set to TV.
2 Select the desired channel with the channel select button on the TV.

Channel selection on the VTR

1 Turn on the TV and set the TV/VTR (input) select button on the TV to VTR.
2 Turn on the VTR and set the TV/VTR select button on the VTR to VTR.
3 Select the desired channel with the channel select buttons on the VTR.



You can receive stereo sound or dual sound.

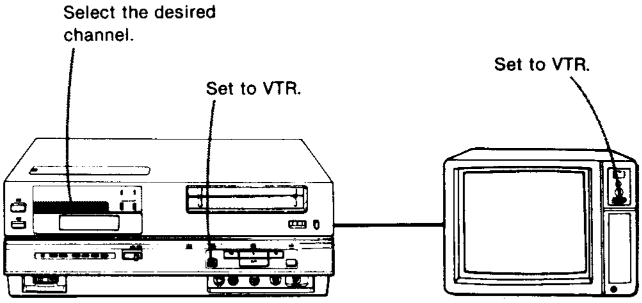
C WHEN USING A TV EQUIPPED WITH A MULTIPLEX CONNECTOR

Channel selection on the TV

1 Turn on the TV and set the TV/VTR select button on the TV to TV. (Your TV may be automatically switched to the TV mode.)
2 Turn on the VTR and set the TV/VTR select button on the VTR to TV.
3 Select the desired channel with the channel select button on the TV.

Channel selection on the VTR

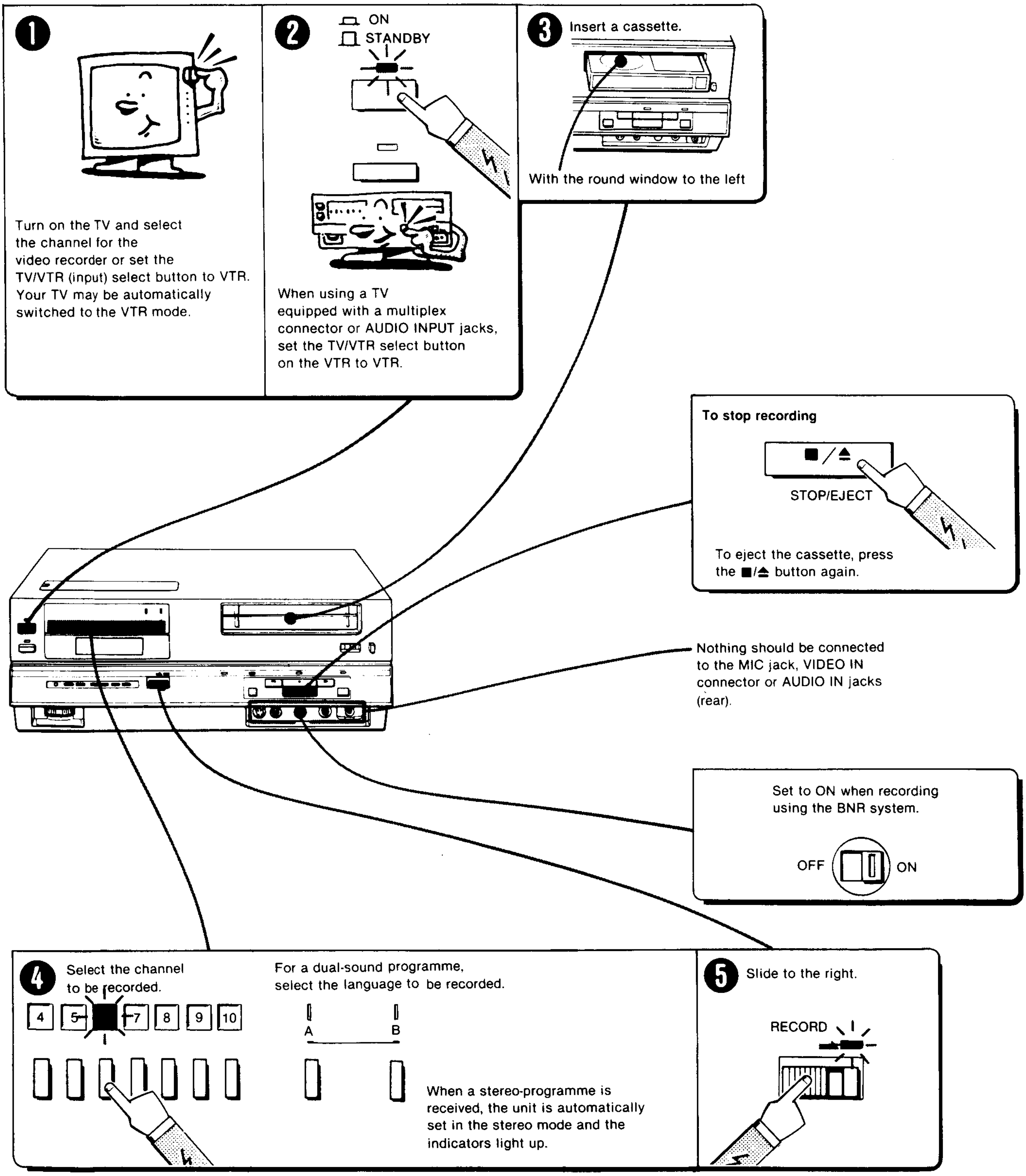
1 Turn on the TV and set the TV/VTR (input) select button on the TV to VTR. (Your TV may be automatically switched to the VTR mode.)
2 Turn on the VTR and set the TV/VTR select button on the VTR to VTR.
3 Select the desired channel with the channel select button on the VTR.



You can receive stereo sound or dual sound.

1-9. HOW TO RECORD TV PROGRAMMES

OPERATION STEP



❶ Turn on the TV and select the channel for the video recorder or set the TV/VTR (input) select button to VTR. Your TV may be automatically switched to the VTR mode.

❷ When using a TV equipped with a multiplex connector or AUDIO INPUT jacks, set the TV/VTR select button on the VTR to VTR.

❸ Insert a cassette.

With the round window to the left

To stop recording

To eject the cassette, press the ■/⏏ button again.

Nothing should be connected to the MIC jack, VIDEO IN connector or AUDIO IN jacks (rear).

Set to ON when recording using the BNR system.

❹ Select the channel to be recorded.

For a dual-sound programme, select the language to be recorded.

When a stereo-programme is received, the unit is automatically set in the stereo mode and the indicators light up.

❺ Slide to the right.

RECORDING ONE TV PROGRAMME WHILE VIEWING ANOTHER

You can record a TV programme selected on the recorder while viewing another TV programme.

A When using the TV connected only to the AERIAL OUT socket

1 Start recording the desired TV programme in the usual way.
2 Select the channel you want to view on the TV.

B When using the TV equipped with the AUDIO and VIDEO INPUT jacks

1 Start recording the desired TV programme in the usual way.
2 Set the TV/VTR (input) select button on the TV to TV.
3 Select the channel you want to view on the TV.

C When using the TV equipped with the multiplex connector

1 Start recording the desired TV programme in the usual way.
2 Set the TV/VTR select button on the VTR to TV.
3 Set the TV/VTR (input) select button on the TV to TV.
(Your TV may be automatically switched to the TV mode.)
4 Select the channel you want to view on the TV.

> The recorder passes all the signals it receives from the aerial to the TV, even when it is recording. This is why you can record a programme when it is being shown on the TV, or when the TV is showing another programme, or even when the TV is turned off.

To stop the tape momentarily

Press the ❚❚ PAUSE/FREEZE button. The lamp above the button will light.
The TV programme can be seen on the TV, but the picture will not be recorded.
To resume recording, press the button again.
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will resume.

Caution

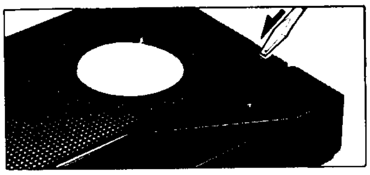
Television programmes, films, video tapes and other materials may be copyrighted.
Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

TO KEEP A RECORDED PROGRAMME FROM BEING ACCIDENTALLY ERASED

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased.

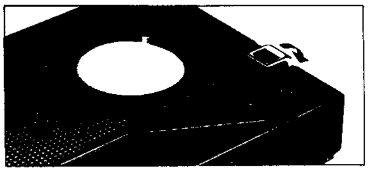
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar object.

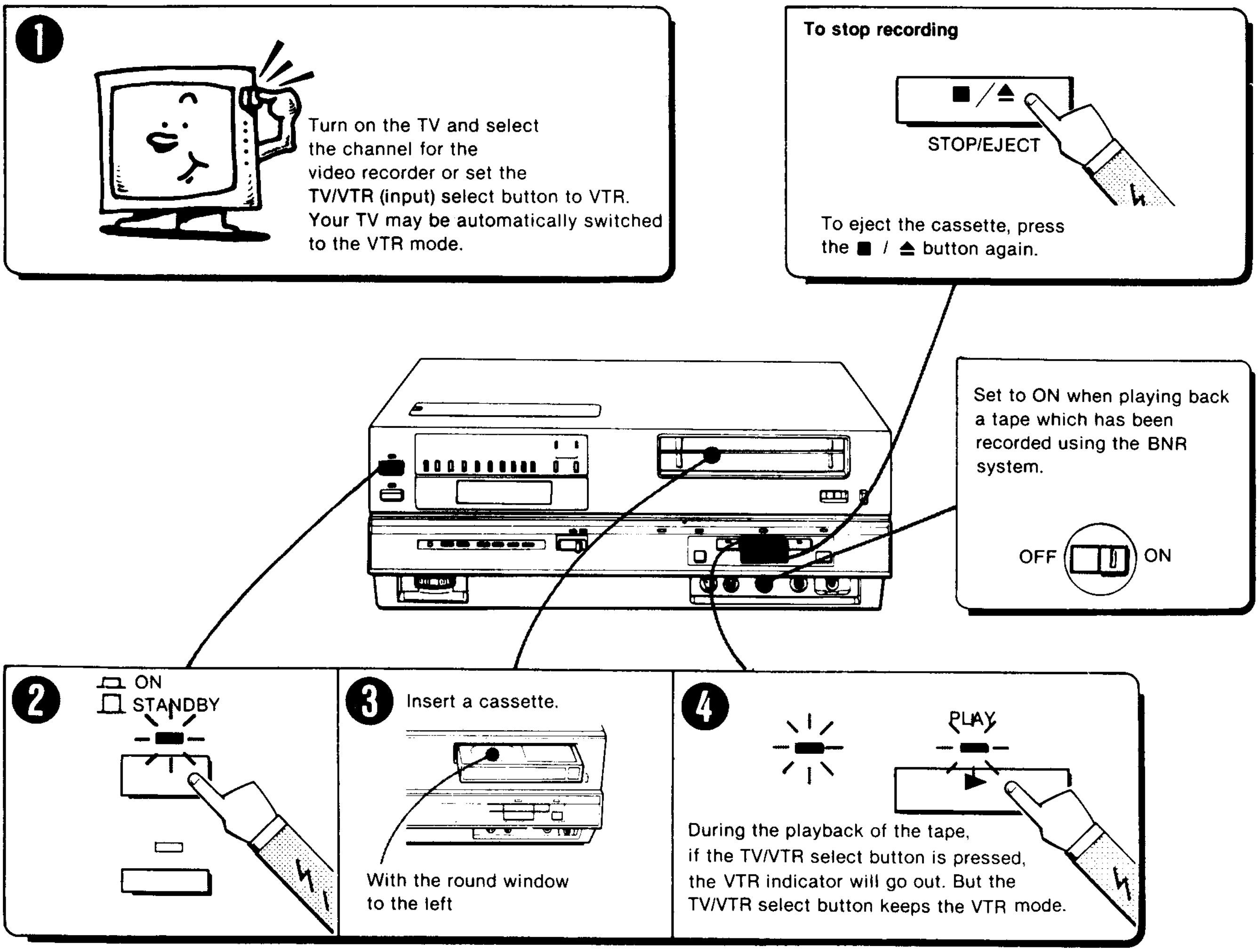


To re-record on a cassette which has had its safety tab removed

Cover the hole with a piece of plastic tape.



1-10. HOW TO PLAY BACK A RECORDED TAPE



❶ Turn on the TV and select the channel for the video recorder or set the TV/VTR (input) select button to VTR. Your TV may be automatically switched to the VTR mode.

To stop recording

To eject the cassette, press the ■ / ⏏ button again.

Set to ON when playing back a tape which has been recorded using the BNR system.

❷

❸ Insert a cassette.

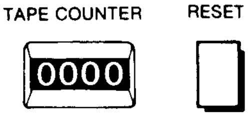
With the round window to the left

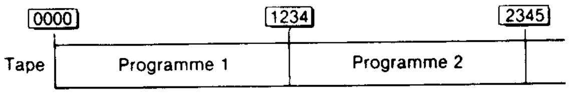
❹ During the playback of the tape, if the TV/VTR select button is pressed, the VTR indicator will go out. But the TV/VTR select button keeps the VTR mode.

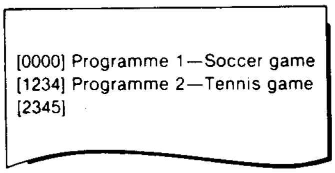
1-11. HOW TO LOCATE A PARTICULAR SCENE

USING THE TAPE COUNTER ...To reference a recorded programme numerically

Before starting recording or playback, press the RESET button so that the TAPE COUNTER indicates "0000". The counter numbers change as the tape moves.
Note the counter reading at the points of interest. You can easily find these points later by referring to the TAPE COUNTER.





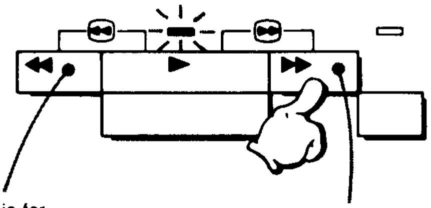


[0000] Programme 1—Soccer game
[1234] Programme 2—Tennis game
[2345]

PICTURE SEARCH ...To search for a particular point while viewing the picture

For picture search operation, the recorder should be set in the playback mode.

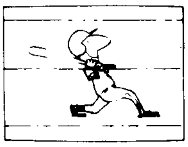
During playback



Press this for backward movement.

Press this for forward movement.

At the desired point, release the button. The normal playback will resume.



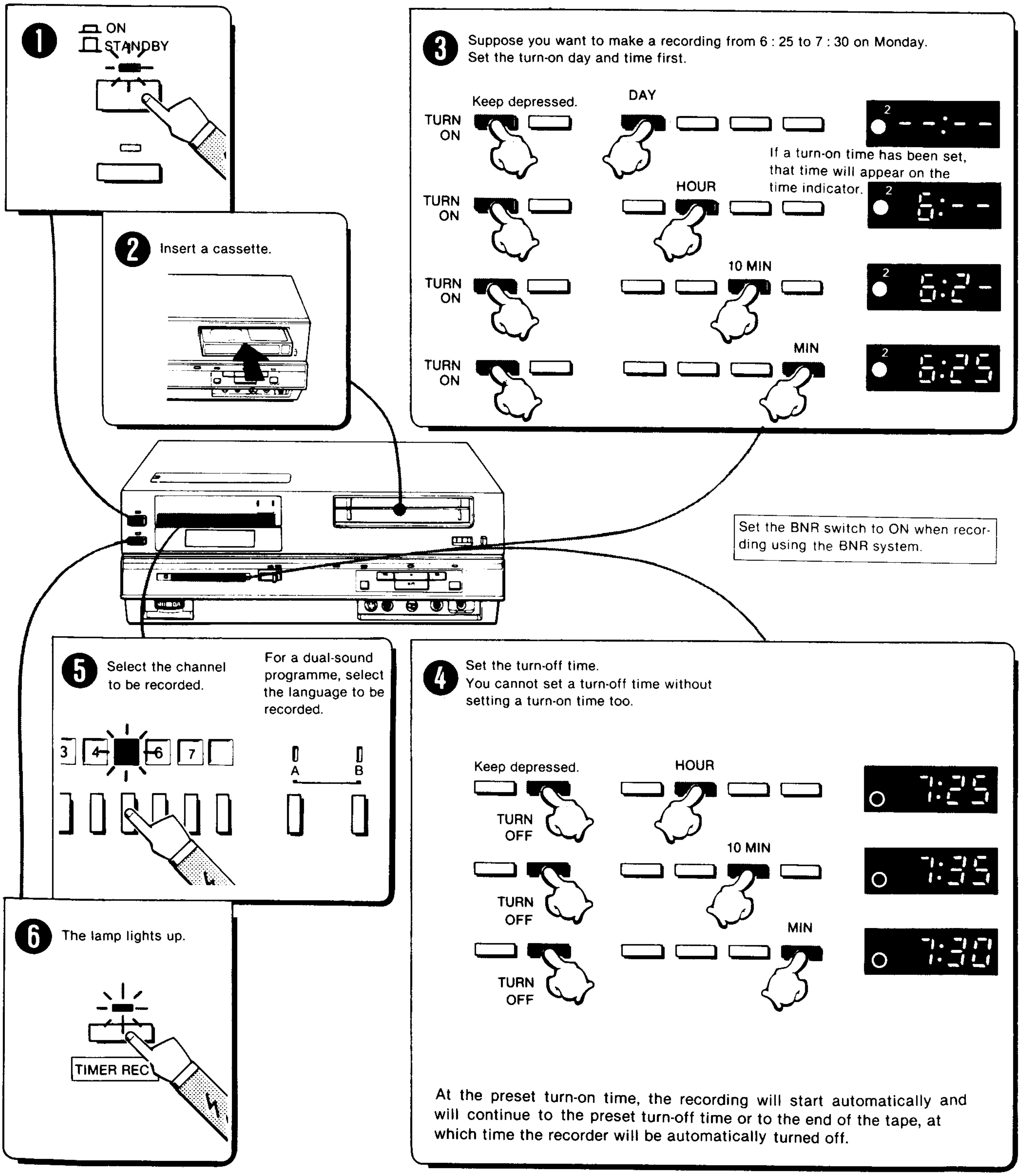
Streaks will appear during the picture search operation.

NOTE: Sound cannot be heard during the picture search operation.

1-12. TIMER-ACTIVATED RECORDING

The timer can only be used to start and stop recording. You can set a turn-on time and a turn-off time for recording any day of the week or every day of the week.
For details how to set the timer, see page 9.

OPERATION STEP



1.

2. Insert a cassette.

3. Suppose you want to make a recording from 6 : 25 to 7 : 30 on Monday. Set the turn-on day and time first.

If a turn-on time has been set, that time will appear on the time indicator.

Set the BNR switch to ON when recording using the BNR system.

4. Set the turn-off time. You cannot set a turn-off time without setting a turn-on time too.

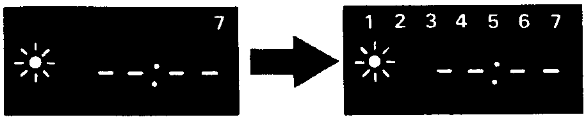
At the preset turn-on time, the recording will start automatically and will continue to the preset turn-off time or to the end of the tape, at which time the recorder will be automatically turned off.

5. Select the channel to be recorded.

For a dual-sound programme, select the language to be recorded.

6. The lamp lights up.

To record a programme at the same time everyday, press the DAY button after the last number, "7", lights so that all the indicators from 1 to 7 light. The timer-activated recording will be made everyday at the same time if you leave the TIMER REC button depressed, as long as the tape lasts.



To record to the end of the tape, set the turn-off time to "--:--".
To set to "--:--", set the turn-off time at the same time as the preset turn-on time. "--:--" will appear on the time indicator when the TURN OFF button is pressed for checking.
Recording will continue to the end of the tape and the recorder will automatically turn off at that time.

> **NOTICE:** ONCE THE TIMER REC LAMP HAS LIT UP, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except the timer section settings. To operate the recorder after setting the timer for recording, depress the TIMER REC button to release it.

If the TIMER REC lamp does not light when you depress the TIMER REC button, check the following.

—Did you insert a cassette?
—Does the cassette inserted have a safety tab on the bottom?
—Did you interrupt a timer-activated recording by pressing the ■/⏏ button? (See "**To stop a timer-activated recording**")

Checking the timer setting
Press the TURN ON button to check the turn-on day/time and the TURN OFF button to check the turn-off time. You can reset the turn-on day/time and turn-off time separately, if necessary.

When the timer-activated recording is finished, press the TIMER REC button to release it.
If you leave the TIMER REC button depressed, the timer recording will be activated at the same time on the same day of the next week, as long as tape remains.

To stop a timer-activated recording,
press the ■ / ⏏ button and the recorder will be turned off.
To set the recorder to make the next timer recording on the same cassette, remove the cassette and insert it again. (If this is not done, the TIMER REC lamp will not light even if the TIMER REC button is pressed.)
For other operations, first press the TIMER REC button to release it, then press the ON/STANDBY button to turn on the recorder.

WHEN A POWER INTERRUPTION OCCURS

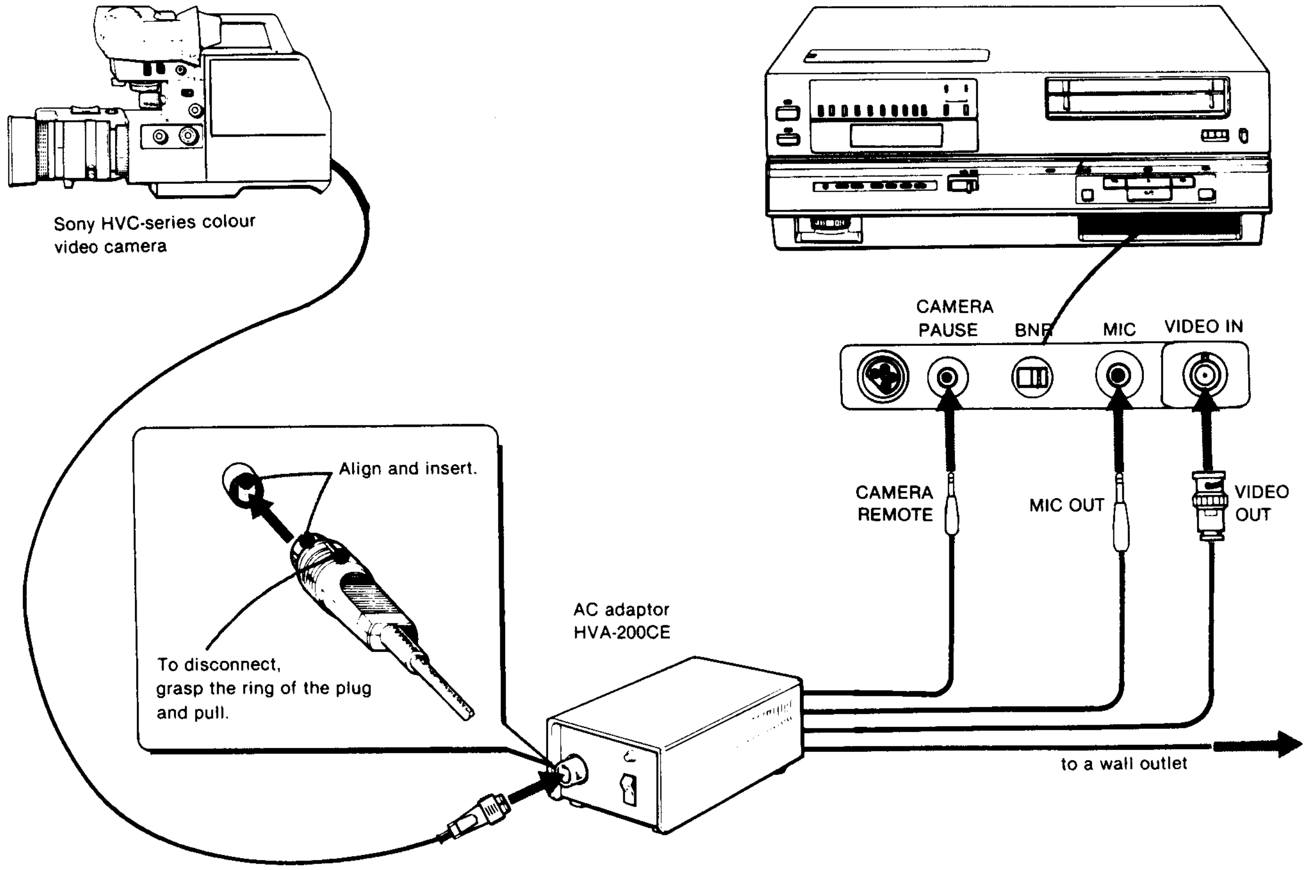
If the clock shows "0:00" and blinks
all the timer settings have been erased. Reset the clock time and the timer settings.

If the clock still shows the correct time but the dots blink
the power has been interrupted for less than 30 seconds, and the timer programmes are retained in the memory.
To stop the dots' blinking, press the CLOCK button.

1-13. CAMERA RECORDING (For producing your own programmes)

CONNECTIONS

- The camera must conform to CCIR TV standards (PAL colour).


Sony HVC-series colour video camera
Align and insert.
To disconnect, grasp the ring of the plug and pull.
AC adaptor HVA-200CE
CAMERA PAUSE
BNR
MIC
VIDEO IN
CAMERA REMOTE
MIC OUT
VIDEO OUT
to a wall outlet

To record the sound from a microphone

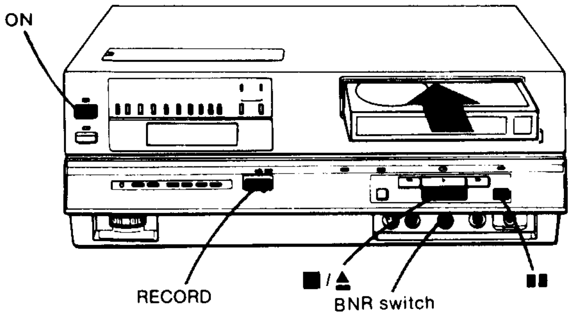
Plug a microphone into the MIC jack. If the microphone has a phone type plug, use a Sony PC-1A plug adaptor.

- When both the MIC and AUDIO IN jacks are connected, the sound from the microphone will be recorded.

To record the sound from other audio sources

Connect an audio source, such as a tape recorder, into the AUDIO IN jack.

OPERATION



❶ Press the ON/STANDBY button to turn on the recorder and insert a cassette.
❷ Turn on the power switch on the ac adaptor.
❸ Make the necessary adjustments on the camera. See the instruction manual furnished with the camera.
❹ Set the BNR switch to ON when recording using the BNR system.
❺ Slide the RECORD switch to the right. Recording will begin.
● If a camera with a tape run/stop button is used, you can momentarily stop recording and restart it using that button.
● If any other camera is used, use the ▮▮ PAUSE/FREEZE button on the recorder or on the optional remote control unit to stop the recording momentarily and restart it.

When the recording is finished, press the ■ / ▲ button.

To view the picture being recorded on the TV screen

A When using a TV connected only to the AERIAL OUT connector

1 Turn the connected TV on.
2 Select the channel for the video recorder on the TV.
The picture being recorded will appear on the TV screen.

B When using a TV equipped with AUDIO and VIDEO INPUT jacks

1 Turn the connected TV on.
2 Set the TV/VTR select button on the VTR to VTR.
3 Set the TV/VTR (input) select button on the TV to VTR.
The picture being recorded will appear on the TV screen.

C When using a TV equipped with multiplex connector

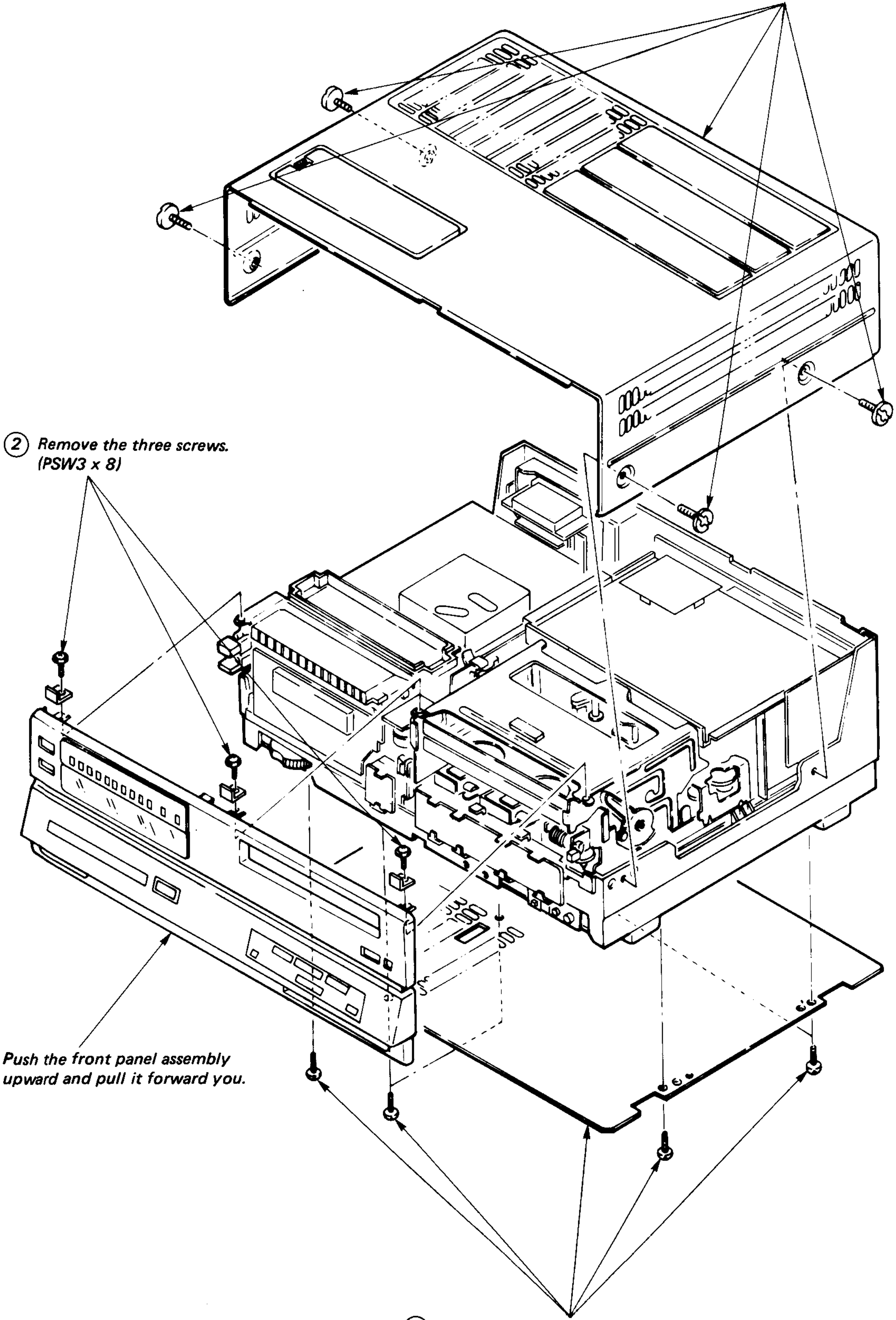
1 Turn the connected TV on.
2 Set the TV/VTR select button on the VTR to VTR.
3 Set the TV/VTR (input) select button on the TV to VTR.
(Your TV may be automatically switched to the VTR mode.)
The picture being recorded will appear on the TV screen.

● If acoustic feedback (a whistle-like sound) is heard when the microphone sound is recorded, turn the microphone (or the camera, if the microphone is built into the camera) away from the TV or turn down the TV volume.

Note
If the input signal level from the VIDEO IN connector is more or less than the required level, you may see a distorted picture or hear a buzzing sound when you monitor the picture on a television or on a monitor screen during camera recording. In this case the picture will still be properly recorded and can be played back without distortion.

SECTION 2
DISASSEMBLY

2-1. CABINET REMOVAL



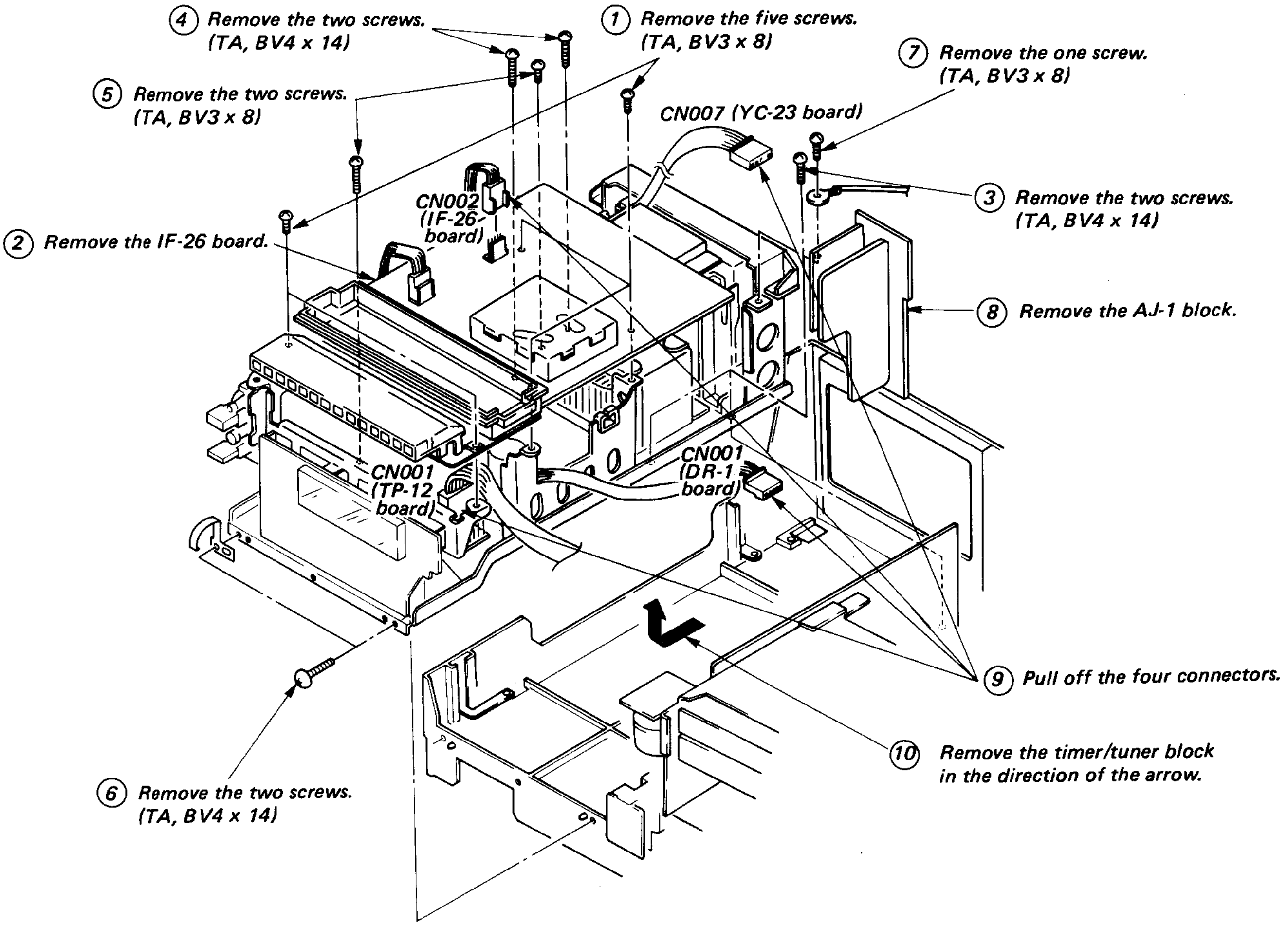
(1) Remove the four screws and remove the upper case.

(2) Remove the three screws. (PSW3 x 8)

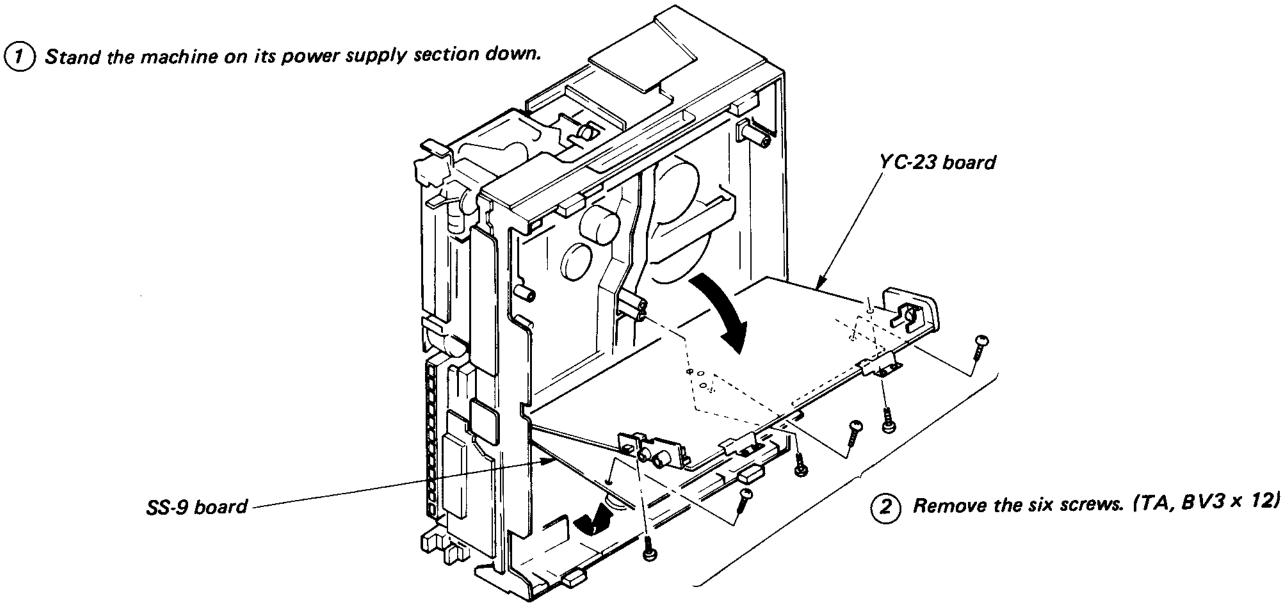
(3) Push the front panel assembly upward and pull it forward you.

(4) Remove the seven screws (TA, BV3 x 12) and remove the bottom plate.

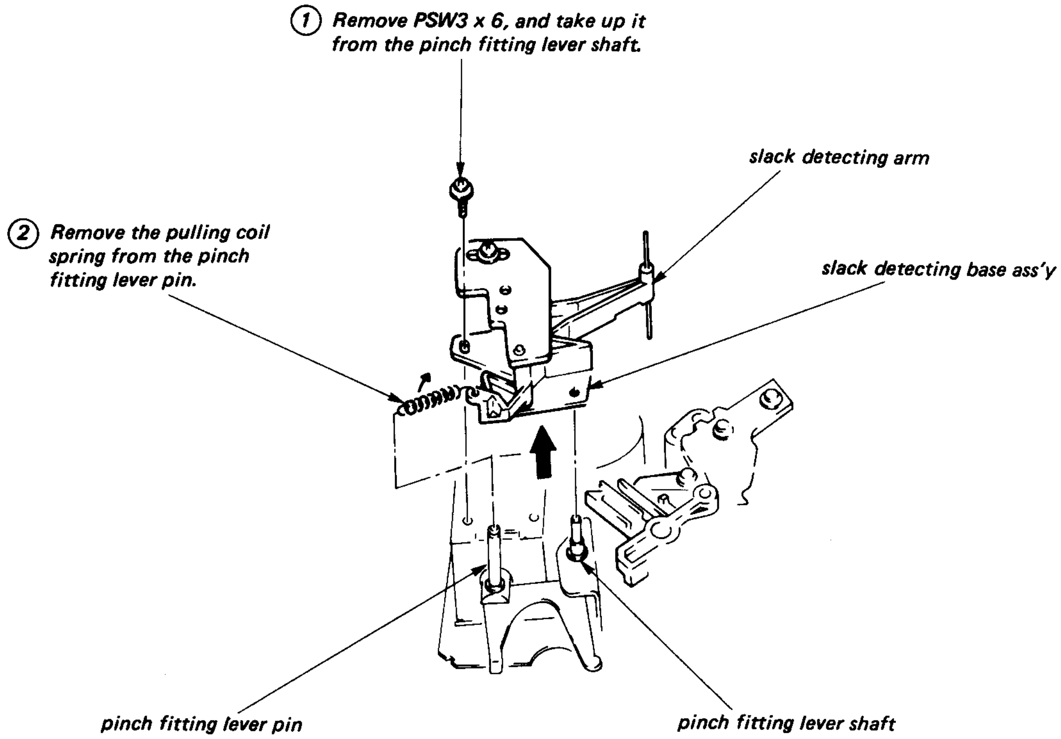
2-2. TIMER/TUNER BLOCK REMOVAL


④ Remove the two screws. (TA, BV4 x 14)
① Remove the five screws. (TA, BV3 x 8)
⑦ Remove the one screw. (TA, BV3 x 8)
⑤ Remove the two screws. (TA, BV3 x 8)
CN007 (YC-23 board)
CN002 (IF-26 board)
③ Remove the two screws. (TA, BV4 x 14)
② Remove the IF-26 board.
⑧ Remove the AJ-1 block.
CN001 (DR-1 board)
CN001 (TP-12 board)
⑨ Pull off the four connectors.
⑩ Remove the timer/tuner block in the direction of the arrow.
⑥ Remove the two screws. (TA, BV4 x 14)

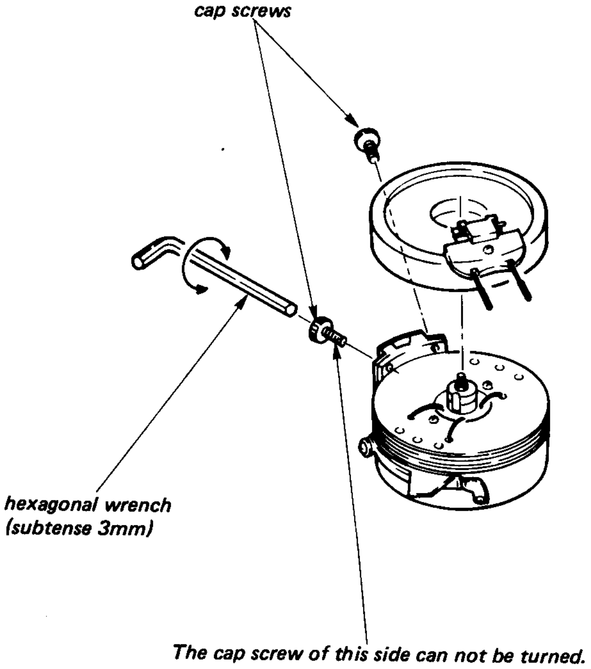
2-3. CHECK OF YC-23 AND SS-9 BOARDS


① Stand the machine on its power supply section down.
YC-23 board
SS-9 board
② Remove the six screws. (TA, BV3 x 12)

2-4. UPPER DRUM REMOVAL

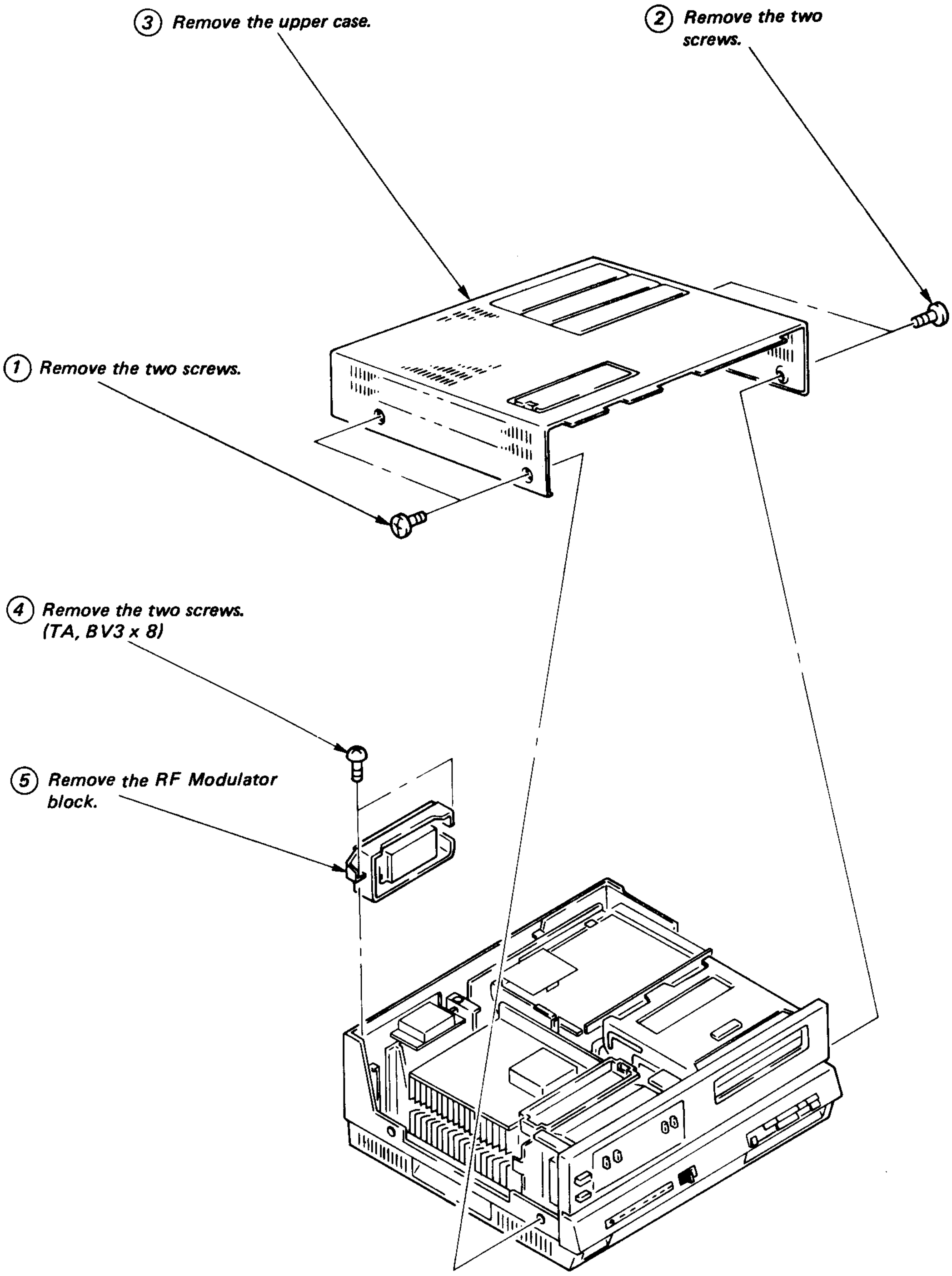


① Remove PSW3 x 6, and take up it from the pinch fitting lever shaft.
slack detecting arm
② Remove the pulling coil spring from the pinch fitting lever pin.
slack detecting base ass'y
pinch fitting lever pin
pinch fitting lever shaft

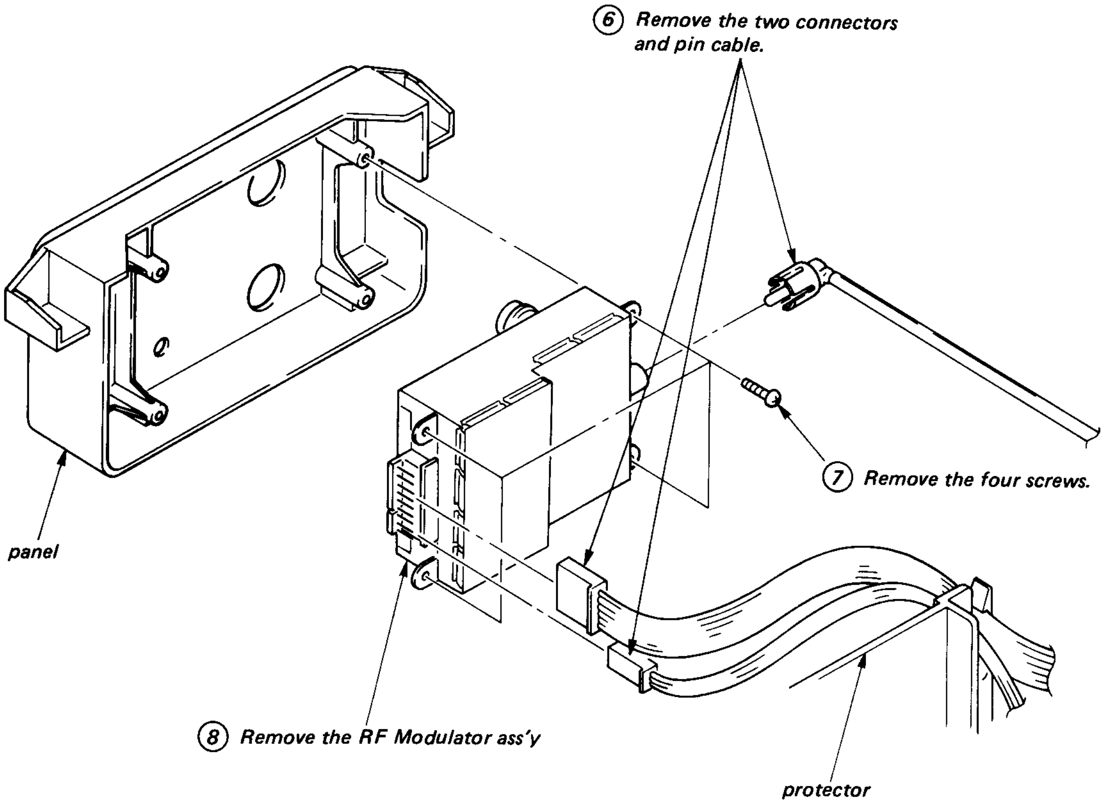


cap screws
hexagonal wrench (subtense 3mm)
The cap screw of this side can not be turned.

2-5. RF MODULATOR ASS'Y REMOVAL (1)

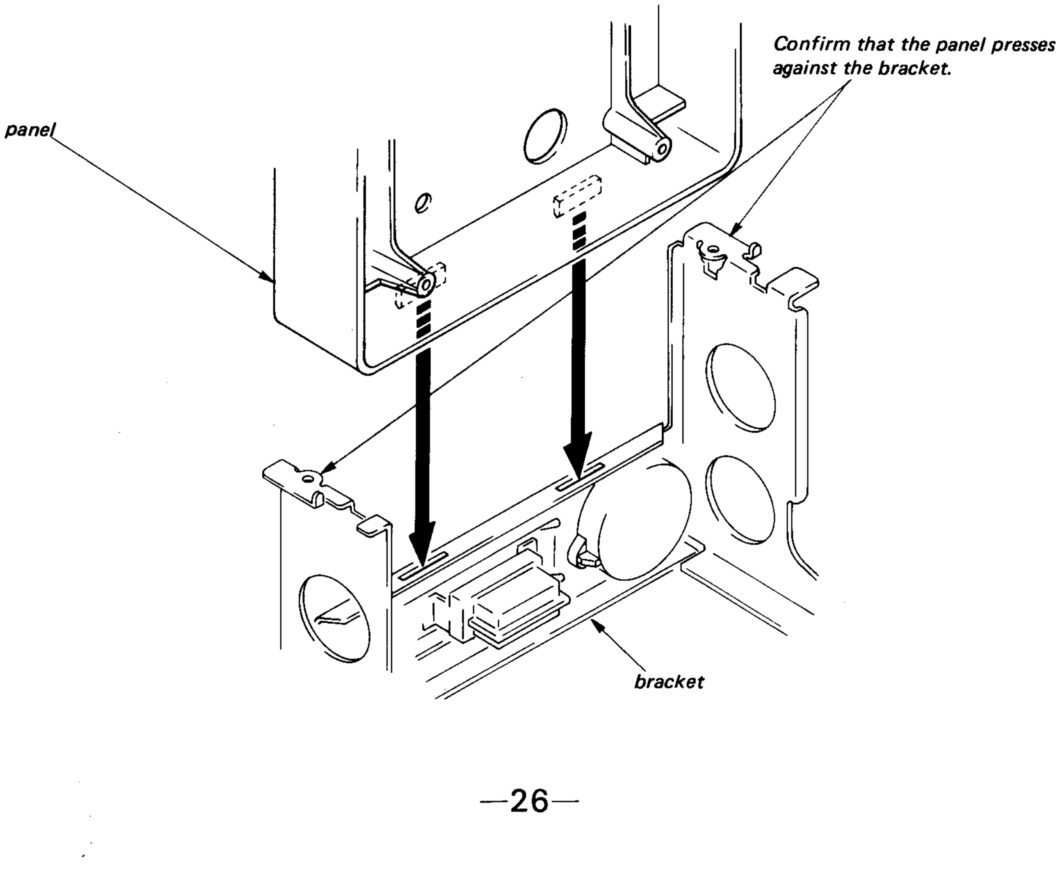

③ Remove the upper case.
② Remove the two screws.
① Remove the two screws.
④ Remove the two screws. (TA, BV3 x 8)
⑤ Remove the RF Modulator block.

2-6. RF MODULATOR ASS'Y REMOVAL (2)



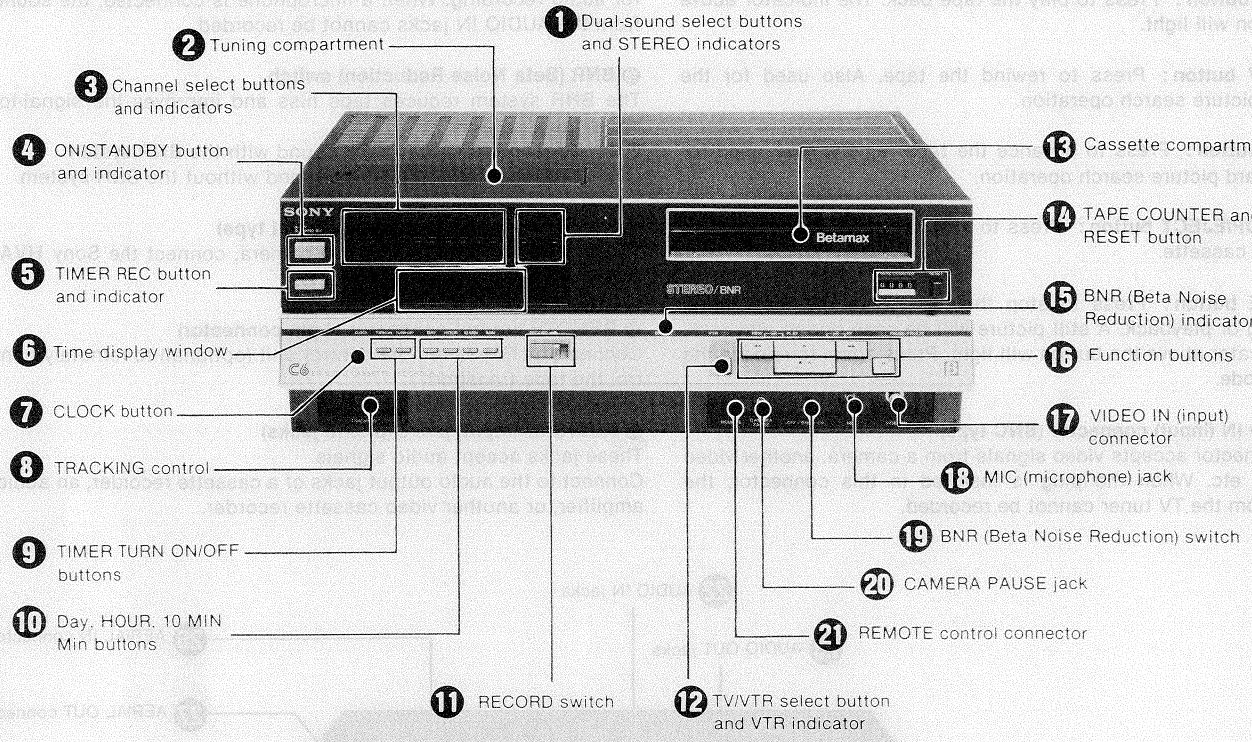
⑥ Remove the two connectors and pin cable.
⑦ Remove the four screws.
panel
⑧ Remove the RF Modulator ass'y
protector

2-7. RF MODULATOR ASS'Y REMOVAL (3)



Confirm that the panel presses against the bracket.
panel
bracket

2-8. LOCATION AND FUNCTION OF CONTROLS



❶ Dual-sound select buttons and STEREO indicators
❷ Tuning compartment
❸ Channel select buttons and indicators
❹ ON/STANDBY button and indicator
❺ TIMER REC button and indicator
❻ Time display window
❼ CLOCK button
❽ TRACKING control
❾ TIMER TURN ON/OFF buttons
❿ Day, HOUR, 10 MIN Min buttons
⓫ RECORD switch
⓬ TV/VTR select button and VTR indicator
⓭ Cassette compartment
⓮ TAPE COUNTER and RESET button
⓯ BNR (Beta Noise Reduction) indicator
⓰ Function buttons
⓱ VIDEO IN (input) connector
⓲ MIC (microphone) jack
⓳ BNR (Beta Noise Reduction) switch
⓴ CAMERA PAUSE jack
㉑ REMOTE control connector
SONY
Betamax
STEREO/BNR
C6

❶ Dual-sound select buttons and STEREO indicators
When a stereo-sound programme is received, the unit automatically operates in the stereo mode and the two lamps will light.
When you receive a dual-sound (bilingual) programmes, select the local language (usually broadcast on channel A) or the original one (usually on channel B) to be recorded.
When playing back the recorded tape, you can hear the stereo sound or selected language automatically. Then, the two lamps will not illuminated.

❷ Tuning compartment
All the switches and knobs for channel presetting are in this compartment.

❸ Channel select buttons and indicators
Select the channel to be recorded or to be viewed with these buttons. The selected channel number will light.

❹ ON/STANDBY button and indicator
Depress to turn on the recorder. While the recorder section is powered, the green lamp lights. The clock section is always powered when the button is in the released STANDBY position.

❺ TIMER REC button and indicator
Depress for timer activated recording. While the timer is in operation, the red lamp lights.

❻ Time display window
Normally, the actual time and the day of the week are displayed here. While the timer is being set, the setting time and day are displayed.

❼ CLOCK button
Use this button in present time setting.

❽ TRACKING control
If streaks or snow appear in the playback of a cassette which was recorded by another video recorder, turn this knob to obtain the best possible picture.
The centre detent position provides the correct tracking for the cassettes recorded by this recorder.

❾ TIMER TURN ON/OFF buttons
Use these buttons in turn-on or turn-off time setting.

❿ DAY, HOUR, 10 MIN, MIN buttons
Use these buttons in turn-on day and time or turn-off time setting while pressing the TIMER TURN ON or OFF button.

⓫ RECORD switch
Slide to the right to start recording. While recording is being made, the lamp above the switch lights.

⓬ TV/VTR select button and VTR indicator
When using a TV equipped with a multiplex connector or AUDIO INPUT jacks, or a colour monitor, you should set this button to TV or VTR.
To view a TV programme selected by a channel select button on the recorder or to monitor the picture being recorded, press this button so that the VTR indicator lights up. When the ▶ button on the recorder is pressed, the unit is automatically set in this mode. To view a TV programme in the usual manner, press this button so that the indicator goes off. When the recorder is turned off and on again, the recorder is automatically set in this mode.

⓭ Cassette compartment
Video cassettes are inserted into this compartment.

⓮ TAPE COUNTER and RESET button
The TAPE COUNTER provides a numerical reference point while recording which can be used to index a recorded cassette.
To reset the counter to zero, press the RESET button.

⓯ BNR (Beta Noise Reduction) indicator
When the BNR switch is set to ON, this indicator will illuminate.

⑯ Function buttons

▶ PLAY button: Press to play the tape back. The indicator above the button will light.

◀◀ REW button: Press to rewind the tape. Also used for the reverse picture search operation.

▶▶ FF button: Press to advance the tape rapidly. Also used for the forward picture search operation.

■/⏏ STOP/EJECT button: Press to stop the tape. Press again to eject the cassette.

❙❙PAUSE button: Press to stop the tape for a moment during recording or playback. A still picture will be seen during playback. The indicator above the button will light. Press again to release the pause mode.

⑰ VIDEO IN (input) connector (BNC type)
This connector accepts video signals from a camera, another video recorder, etc. When the plug is inserted in this connector, the signal from the TV tuner cannot be recorded.

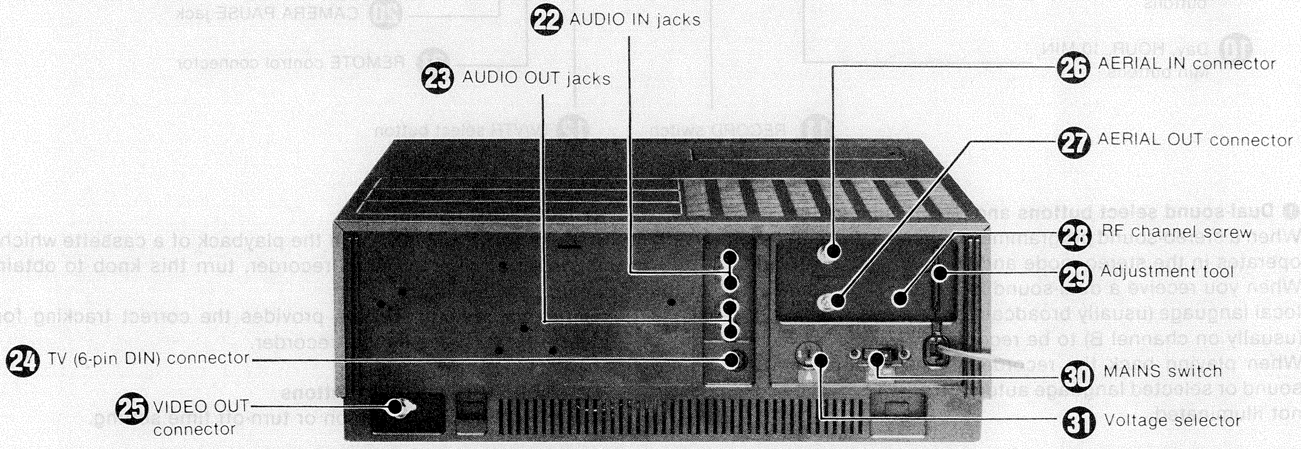
⑱ MIC (microphone) jack (minitype)
Connect a microphone or the MIC OUT plug of the AC adaptor here for audio recording. When a microphone is connected, the sound from the AUDIO IN jacks cannot be recorded.

⑲ BNR (Beta Noise Reduction) switch
The BNR system reduces tape hiss and improves the signal-to-noise ratio.
ON: To record and play back sound with the BNR system
OFF: To record and play back sound without the BNR system

⑳ CAMERA PAUSE jack (special mini type)
To start or stop the tape on the camera, connect the Sony HVA-200CE AC adaptor to this jack.

㉑ REMOTE control connector (4-pin connector)
Connect the RM-72 remote control unit (optional) to remotely control the tape transport.

㉒ AUDIO IN (input) jacks (phono jacks)
These jacks accept audio signals.
Connect to the audio output jacks of a cassette recorder, an audio amplifier, or another video cassette recorder.



㉓ AUDIO OUT (output) jacks (phono jacks)
These jacks provide audio signals of this recorder.
Connect to the audio input jacks of an audio system, a TV receiver, a video monitor, or a video cassette recorder.

㉔ TV (6-pin) DIN connector
This connector provides audio and video signals of this recorder.
Connect to a TV receiver equipped with the same type of connector.

㉕ VIDEO OUT (output) connector (BNC type)
This connector provides the video signal of this recorder.
Connect it to the video input of another video recorder, a TV receiver or a video monitor.

㉖ AERIAL IN (input) connector
This connector accepts signals from the TV aerial.
Connect the 75-ohm coaxial cable of your TV aerial here.

㉗ AERIAL OUT (output) connector
This connector provides the RF output signal of this recorder and the TV signals which are input into the AERIAL IN connector ㉖.
Connect this to the aerial input terminal of the TV receiver using the supplied 75-ohm cable.

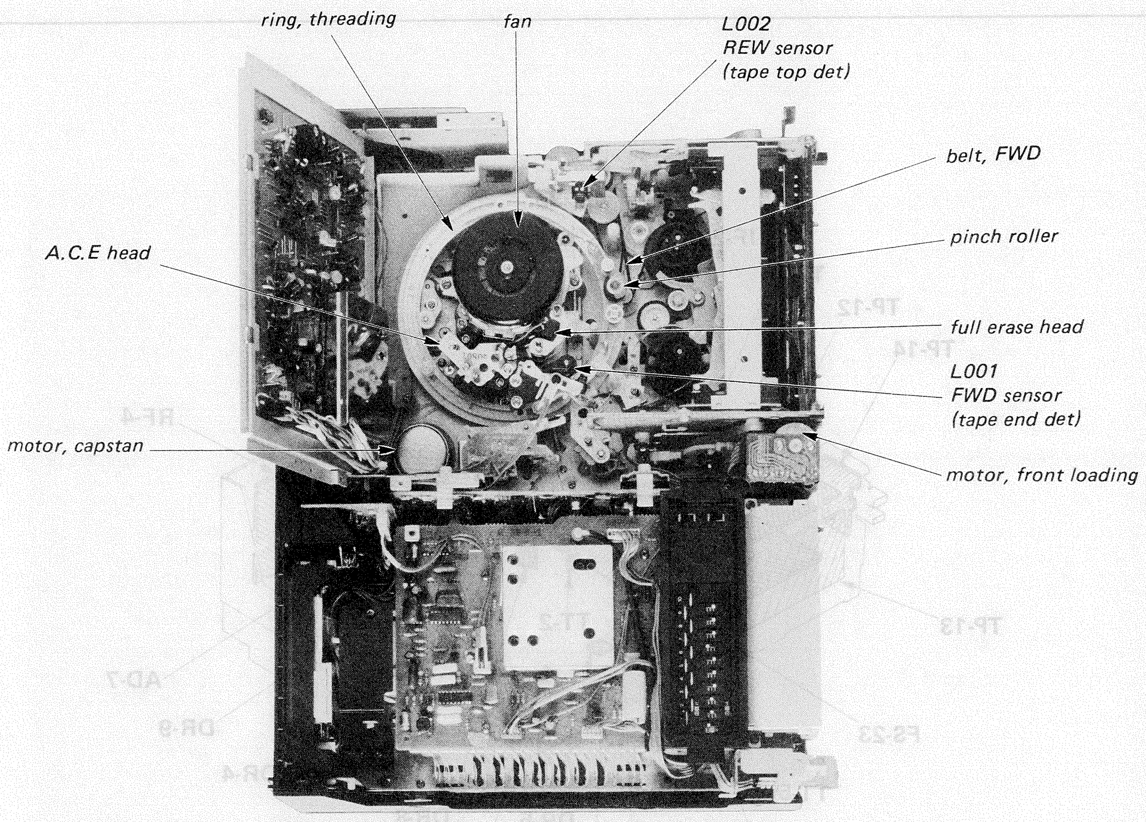
㉘ RF CHANNEL screw
If there is interference on the factory preset channel for RF output* and the signals of this recorder cannot be displayed clearly on the TV screen, adjust this screw with the adjustment tool ㉙.

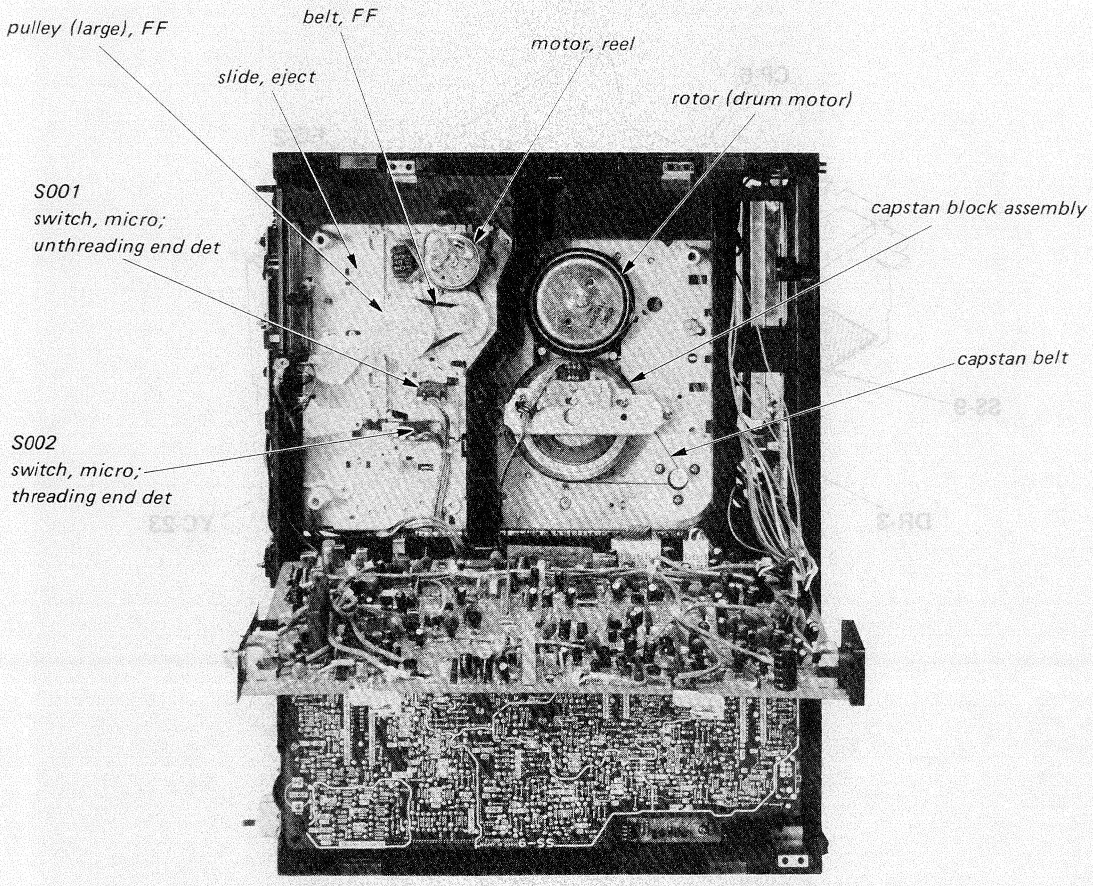
*RF (Radio Frequency) output: TV signals received by this recorder's tuner, the playback signal and the input signal from the camera are all converted into a UHF channel between 30 and 39, then supplied to the TV. This converted UHF channel signal is called the RF output signal. To obtain a picture from the recorder on the TV, the TV's channel should be set to the same UHF channel.

㉙ Adjustment tool
Use this tool when turning the RF CHANNEL screw.

㉚ MAINS switch
Normally keep this switch in the ON position. To cut off the power to the entire machine, set the switch to OFF.

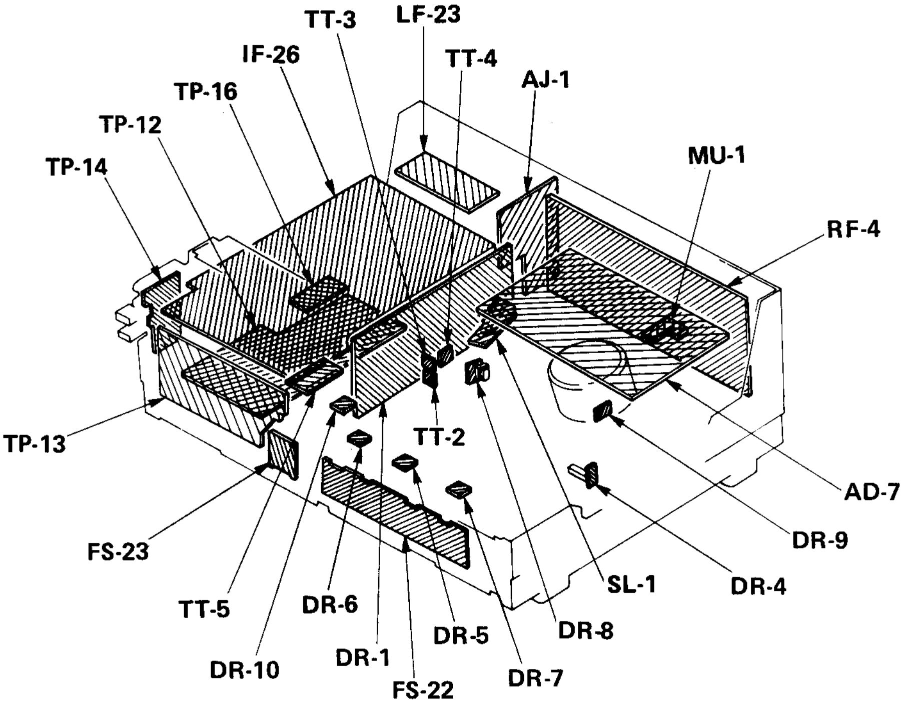
㉛ Voltage selector
This selector is adjustable to either 220 or 240 V ac.

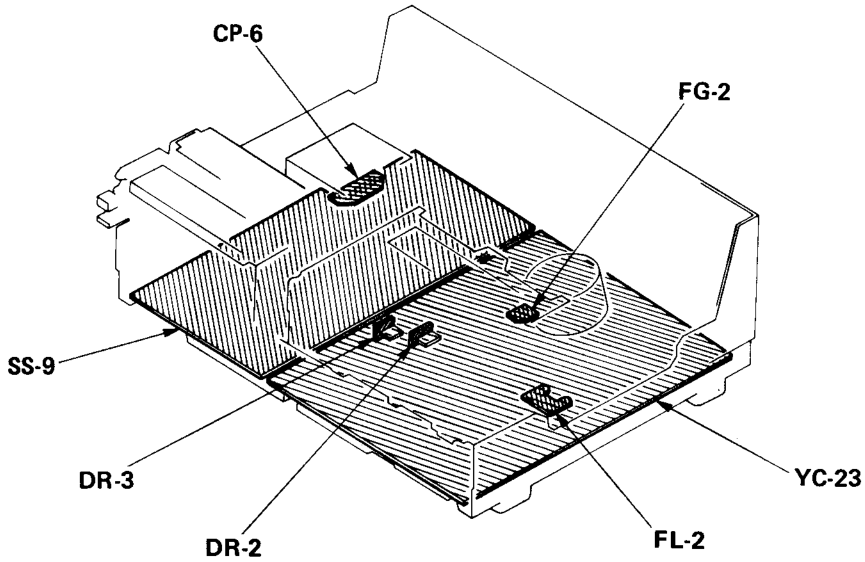

ring, threading
fan
L002
REW sensor
(tape top det)
belt, FWD
pinch roller
A.C.E head
full erase head
L001
FWD sensor
(tape end det)
motor, capstan
motor, front loading


pulley (large), FF
belt, FF
motor, reel
slide, eject
rotor (drum motor)
S001
switch, micro;
unthreading end det
capstan block assembly
capstan belt
S002
switch, micro;
threading end det

SECTION 3
DIAGRAMS

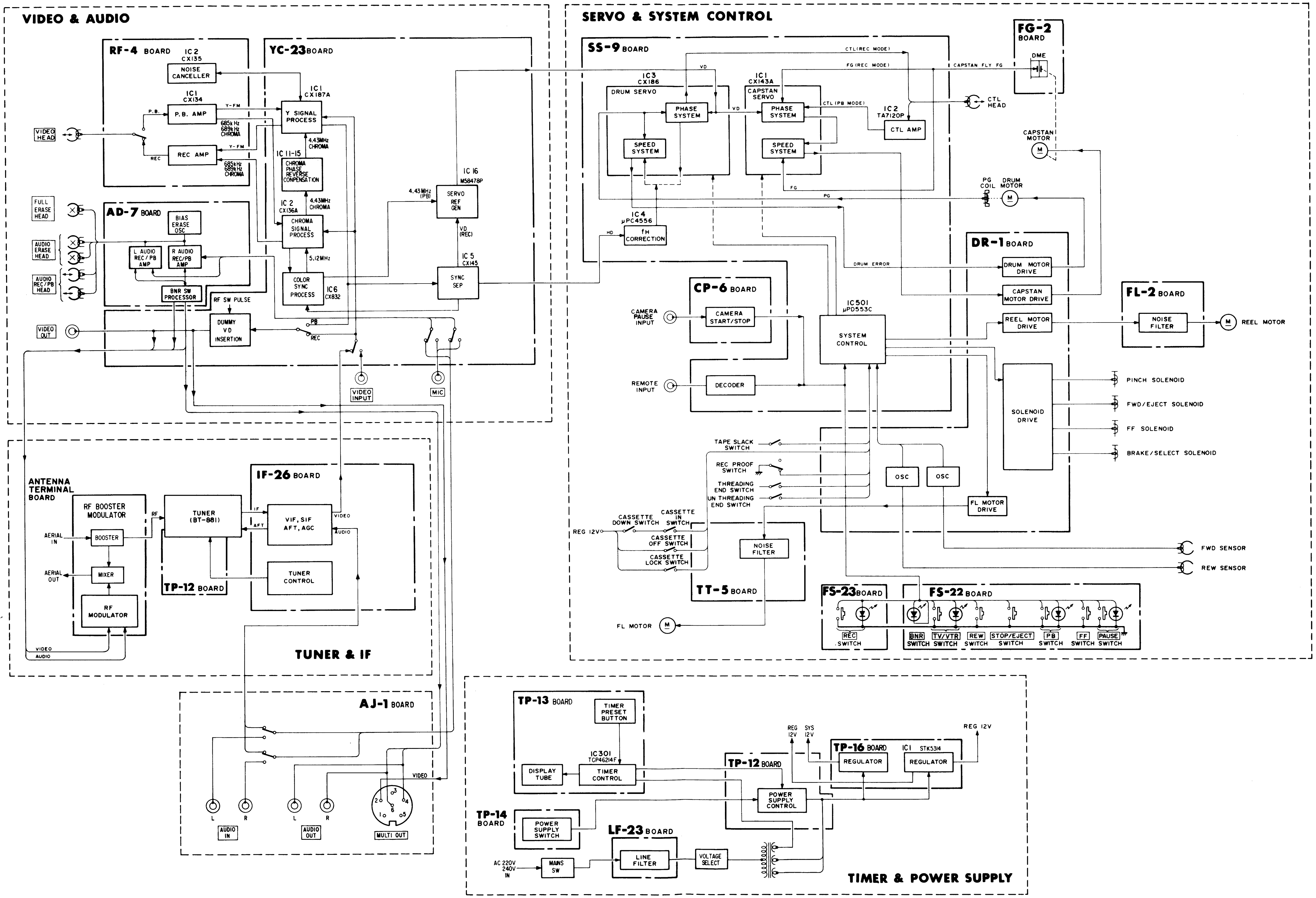
3-1. CIRCUIT BOARDS LOCATION


TT-3
LF-23
IF-26
TT-4
AJ-1
TP-16
TP-12
TP-14
MU-1
RF-4
TP-13
TT-2
AD-7
FS-23
DR-9
SL-1
DR-4
TT-5
DR-6
DR-5
DR-8
DR-10
DR-1
FS-22
DR-7

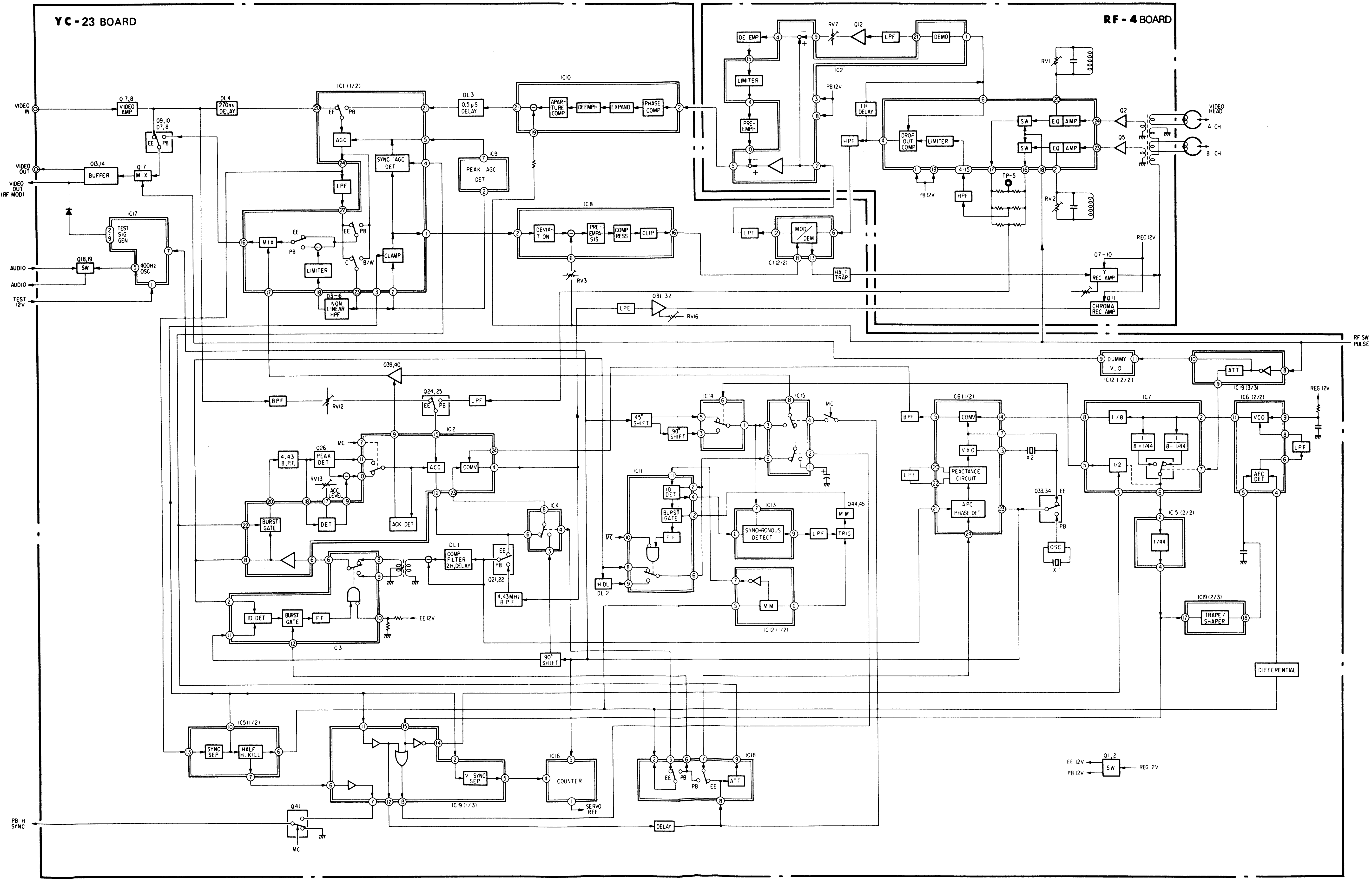

CP-6
FG-2
SS-9
DR-3
YC-23
DR-2
FL-2

3-2. BLOCK DIAGRAMS

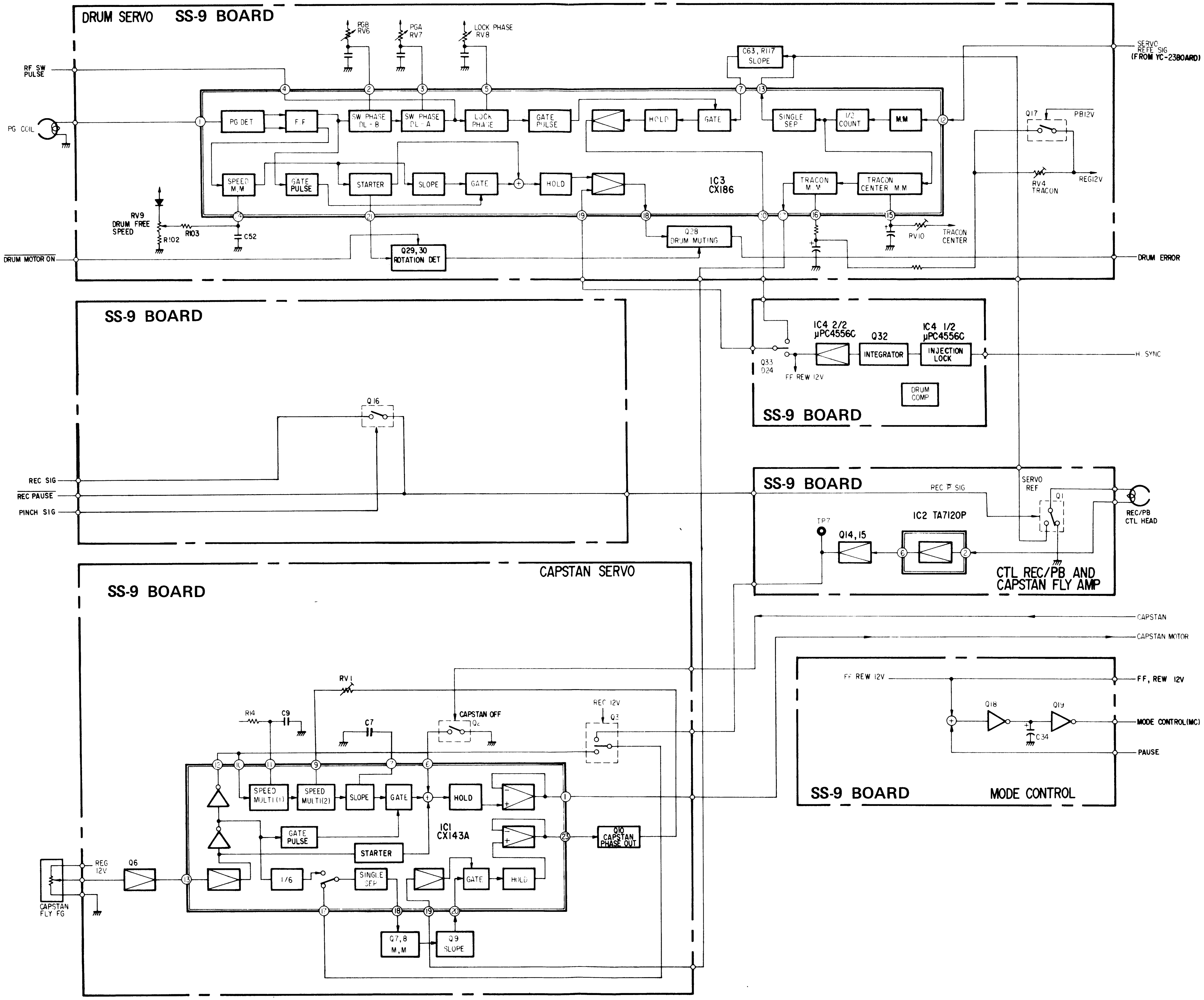
(1) OVERALL BLOCK DIAGRAM


VIDEO & AUDIO
RF-4 BOARD
IC2 CX135
NOISE CANCELLER
IC1 CX134
P.B. AMP
REC AMP
Y-FM
685kHz 689kHz CHROMA
P.B.
REC
VIDEO HEAD
YC-23 BOARD
IC1 CX187A
Y SIGNAL PROCESS
4.43MHz CHROMA
IC 11-15
CHROMA PHASE REVERSE CONPENSATION
IC 2 CX136A
CHROMA SIGNAL PROCESS
5.12MHz
COLOR SYNC PROCESS
IC6 CX832
IC 16 M58478P
SERVO REF GEN
4.43MHz (PB)
VD (REC)
IC 5 CX145
SYNC SEP
FULL ERASE HEAD
AUDIO ERASE HEAD
AUDIO REC/PB HEAD
AD-7 BOARD
BIAS ERASE OSC
L AUDIO REC/PB AMP
R AUDIO REC/PB AMP
BNR SW PROCESSOR
RF SW PULSE
DUMMY VD INSERTION
PB
REC
VIDEO OUT
VIDEO INPUT
MIC
SERVO & SYSTEM CONTROL
SS-9 BOARD
CTL(REC MODE)
FG(REC MODE)
VD
IC3 CX186
DRUM SERVO
PHASE SYSTEM
SPEED SYSTEM
IC1 CX143A
CAPSTAN SERVO
CTL(PB MODE)
IC2 TA7120P
CTL AMP
IC4 μPC4556
fH CORRECTION
HD
FG
PG
DRUM ERROR
FG-2 BOARD
DME
CAPSTAN FLY FG
CTL HEAD
CAPSTAN MOTOR
PG COIL
DRUM MOTOR
DR-1 BOARD
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
REEL MOTOR DRIVE
SOLENOID DRIVE
FL MOTOR DRIVE
FL-2 BOARD
NOISE FILTER
REEL MOTOR
PINCH SOLENOID
FWD/EJECT SOLENOID
FF SOLENOID
BRAKE/SELECT SOLENOID
CP-6 BOARD
CAMERA PAUSE INPUT
CAMERA START/STOP
REMOTE INPUT
DECODER
IC501 μPD553C
SYSTEM CONTROL
OSC
OSC
TAPE SLACK SWITCH
REC PROOF SWITCH
THREADING END SWITCH
UN THREADING END SWITCH
CASSETTE DOWN SWITCH
CASSETTE IN SWITCH
CASSETTE OFF SWITCH
CASSETTE LOCK SWITCH
REG 12V
NOISE FILTER
TT-5 BOARD
FL MOTOR
FWD SENSOR
REW SENSOR
FS-23 BOARD
REC SWITCH
FS-22 BOARD
BNR SWITCH
TV/VTR SWITCH
REW SWITCH
STOP/EJECT SWITCH
PB SWITCH
FF SWITCH
PAUSE SWITCH
ANTENNA TERMINAL BOARD
RF BOOSTER MODULATOR
AERIAL IN
BOOSTER
AERIAL OUT
MIXER
RF MODULATOR
VIDEO
AUDIO
RF
TUNER (BT-881)
TP-12 BOARD
IF-26 BOARD
IF
AFT
VIF, SIF AFT, AGC
VIDEO
AUDIO
TUNER CONTROL
TUNER & IF
AJ-1 BOARD
VIDEO
L
R
AUDIO IN
L
R
AUDIO OUT
MULTI OUT
TP-13 BOARD
TIMER PRESET BUTTON
IC301 TCP4621AF
DISPLAY TUBE
TIMER CONTROL
REG SYS 12V 12V
REG 12V
TP-16 BOARD
IC1 STK5314
REGULATOR
REGULATOR
TP-12 BOARD
POWER SUPPLY CONTROL
TP-14 BOARD
POWER SUPPLY SWITCH
LF-23 BOARD
LINE FILTER
VOLTAGE SELECT
AC 220V 240V IN
MAINS SW
TIMER & POWER SUPPLY

(2) VIDEO SYSTEM BLOCK DIAGRAM

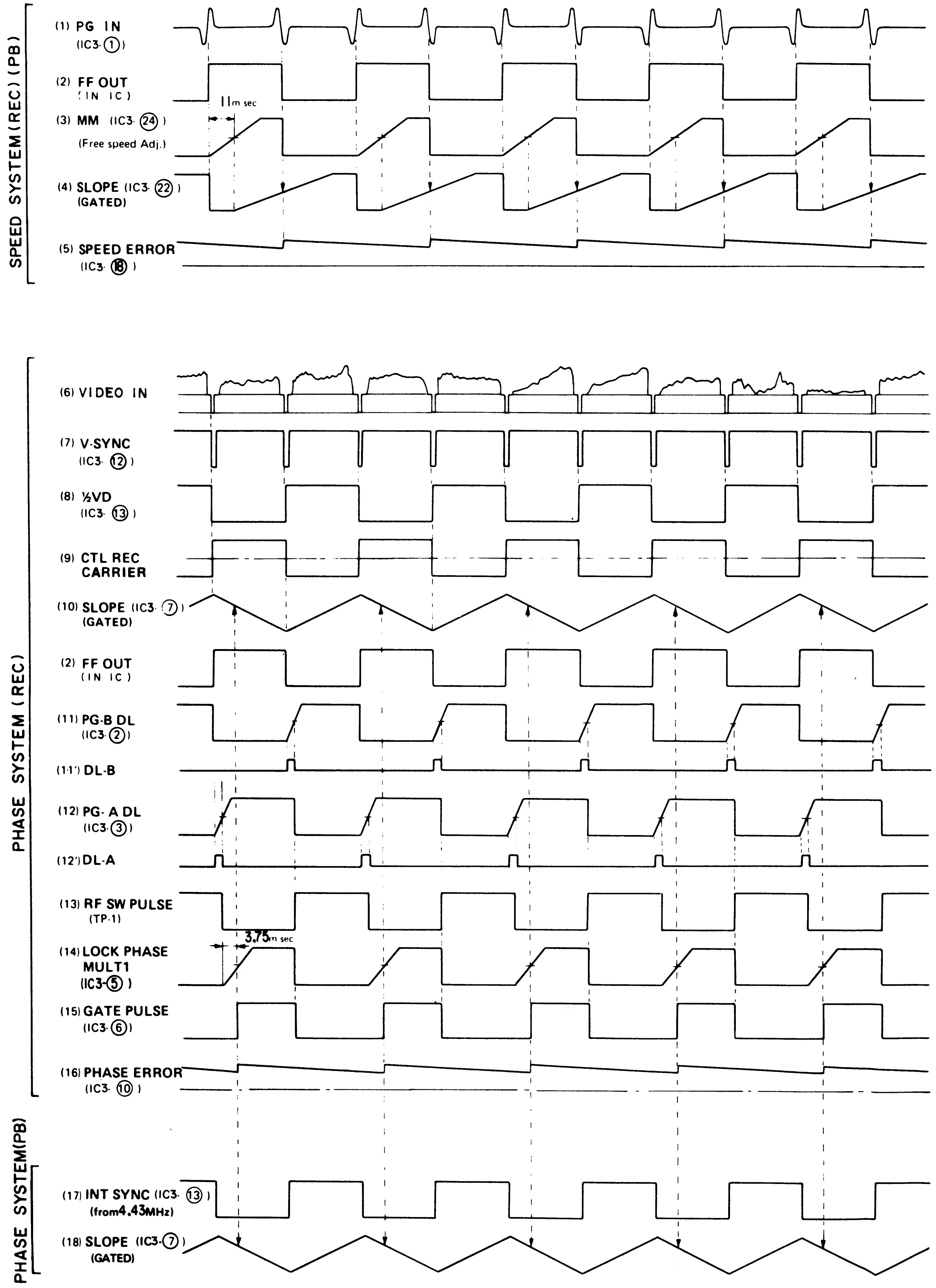

YC-23 BOARD
RF-4 BOARD
VIDEO IN
VIDEO OUT
VIDEO OUT (RF MOD)
AUDIO
TEST 12V
PB H SYNC
Q7,8 VIDEO AMP
Q9,10 D7,8
EE
PB
Q13,14 BUFFER
Q17 MIX
IC17 TEST SIG GEN
400Hz OSC
Q18,19 SW
DL4 270ns DELAY
IC1 (1/2)
AGC
LPF
SYNC AGC DET
MIX
LIMITER
CLAMP
C
B/W
D3-6 NON LINEAR HPF
DL3 0.5μS DELAY
IC10
APAR-TURE COMP
DEEMPH
EXPAND
PHASE COMP
IC9 PEAK AGC DET
IC8
DEVIA-TION
PRE-EMPA-SIS
COMP-RESS
CLIP
RV3
LPF
Q31,32
RV16
DE EMP
LIMITER
PRE-EMPH
RV7
Q12
DEMO
IC2
PB 12V
1H DELAY
HPF
DROP OUT COMP
TP-5
RV1
RV2
SW
EQ AMP
Q2
Q5
VIDEO HEAD
A CH
B CH
IC1 (2/2)
MOD/DEM
HALF TRAP
REC 12V
Q7-10 Y REC AMP
Q11 CHROMA REC AMP
RF SW PULSE
Q39,40
BPF
RV12
Q24,25
IC2
Q26 PEAK DET
MC
4.43 B.P.F.
RV13
ACC LEVEL
ACC
COMV
BURST GATE
DET
ACK DET
IC4
DL1 COMP FILTER 2H DELAY
Q21,22
4.43MHz BPF
ID DET
FF
EE 12V
IC3
90° SHIFT
IC14
45° SHIFT
IC15
IC11
1H DL
DL 2
IC13 SYNCHRONOUS DETECT
Q44,45 MM
TRIG
IC12 (1/2)
DUMMY V. D
IC12 (2/2)
ATT
IC19 (3/3)
IC6 (1/2)
VXO
REACTANCE CIRCUIT
APC PHASE DET
X2
Q33,34
OSC
X1
IC7
1/8
1/(8+1/44)
1/(8−1/44)
1/2
IC5 (2/2)
1/44
IC6 (2/2)
VCO
AFC DET
REG 12V
IC19 (2/3) TRAPE/SHAPER
DIFFERENTIAL
IC5 (1/2)
SYNC SEP
HALF H. KILL
IC19 (1/3)
V SYNC SEP
IC16 COUNTER
SERVO REF
IC18
DELAY
Q41
EE 12V
PB 12V
Q1,2 SW
REG 12V

(3) SERVO SYSTEM BLOCK DIAGRAM

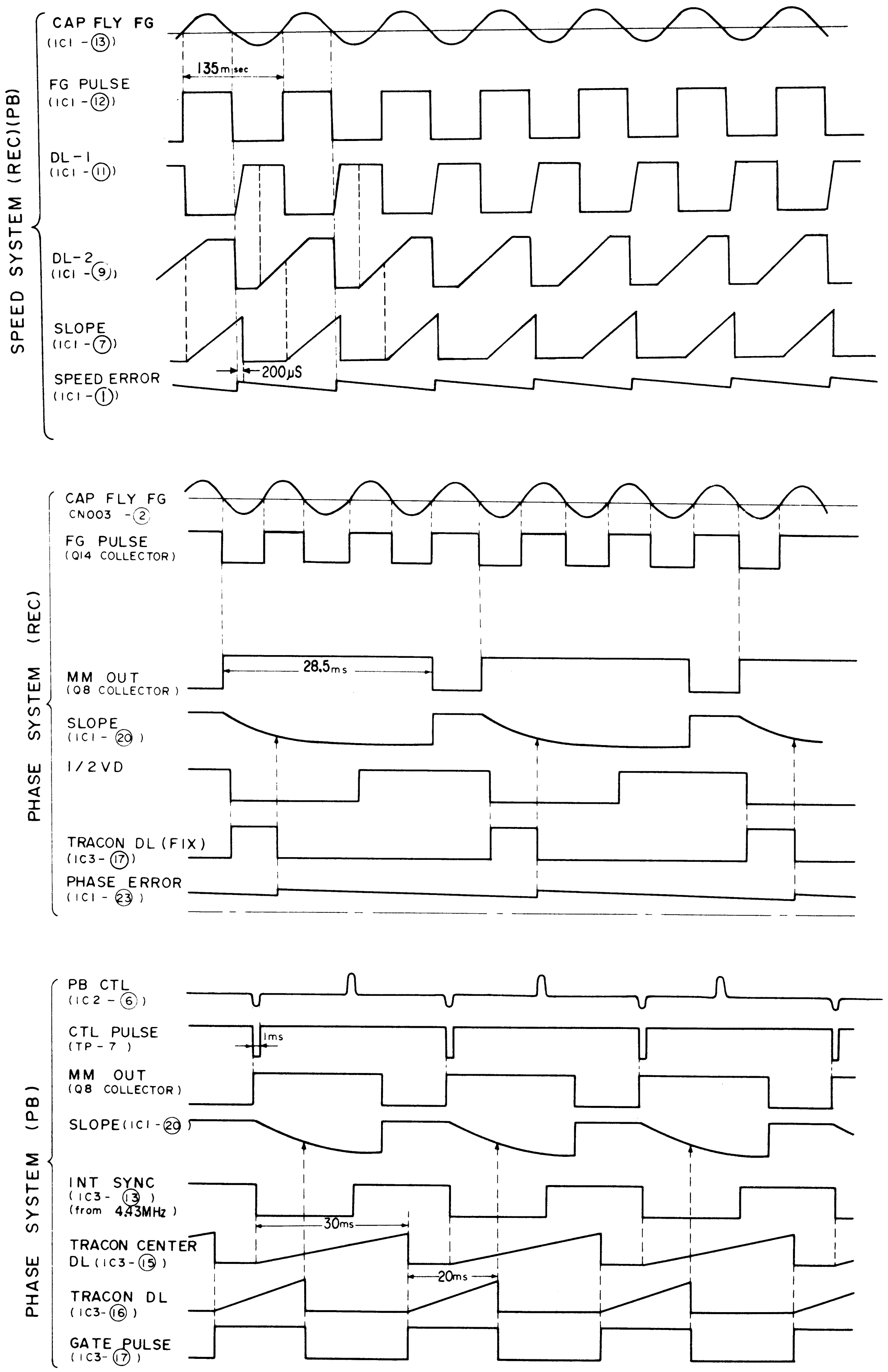


DRUM SERVO
SS-9 BOARD
PGB RV6
PGA RV7
LOCK PHASE RV8
RF SW PULSE
PG COIL
PG DET
F.F
SW PHASE DL-B
SW PHASE DL-A
LOCK PHASE
GATE PULSE
HOLD
GATE
SINGLE SEP
1/2 COUNT
M.M
C63, R117 SLOPE
SERVO REFE SIG (FROM YC-2380ARD)
SPEED M.M
GATE PULSE
STARTER
SLOPE
GATE
HOLD
IC3 CX186
TRACON M.M
TRACON CENTER M.M
Q17
PB12V
RV4 TRACON
REG12V
RV9 DRUM FREE SPEED
R103
R102
C52
Q28 DRUM MUTING
Q29, 30 ROTATION DET
PV10
TRACON CENTER
DRUM MOTOR ON
DRUM ERROR
SS-9 BOARD
IC4 2/2 μPC4556C
Q32
IC4 1/2 μPC4556C
INTEGRATOR
INJECTION LOCK
Q33 D24
FF REW 12V
DRUM COMP
H. SYNC
SS-9 BOARD
Q16
REC SIG
REC PAUSE
PINCH SIG
SS-9 BOARD
REC P SIG
SERVO REF
Q1
REC/PB CTL HEAD
TP7
Q14, 15
IC2 TA7120P
CTL REC/PB AND CAPSTAN FLY AMP
CAPSTAN
CAPSTAN MOTOR
SS-9 BOARD
CAPSTAN SERVO
RV1
R14
C9
C7
CAPSTAN OFF Q2
REC 12V
Q3
SPEED MULTI(1)
SPEED MULTI(2)
SLOPE
GATE
HOLD
GATE PULSE
IC1 CX143A
STARTER
Q10 CAPSTAN PHASE OUT
1/6
SINGLE SEP
GATE
HOLD
REG 12V
Q6
CAPSTAN FLY FG
Q7,8 M.M
Q9 SLOPE
FF REW 12V
FF, REW 12V
Q18
Q19
C34
MODE CONTROL(MC)
PAUSE
SS-9 BOARD
MODE CONTROL

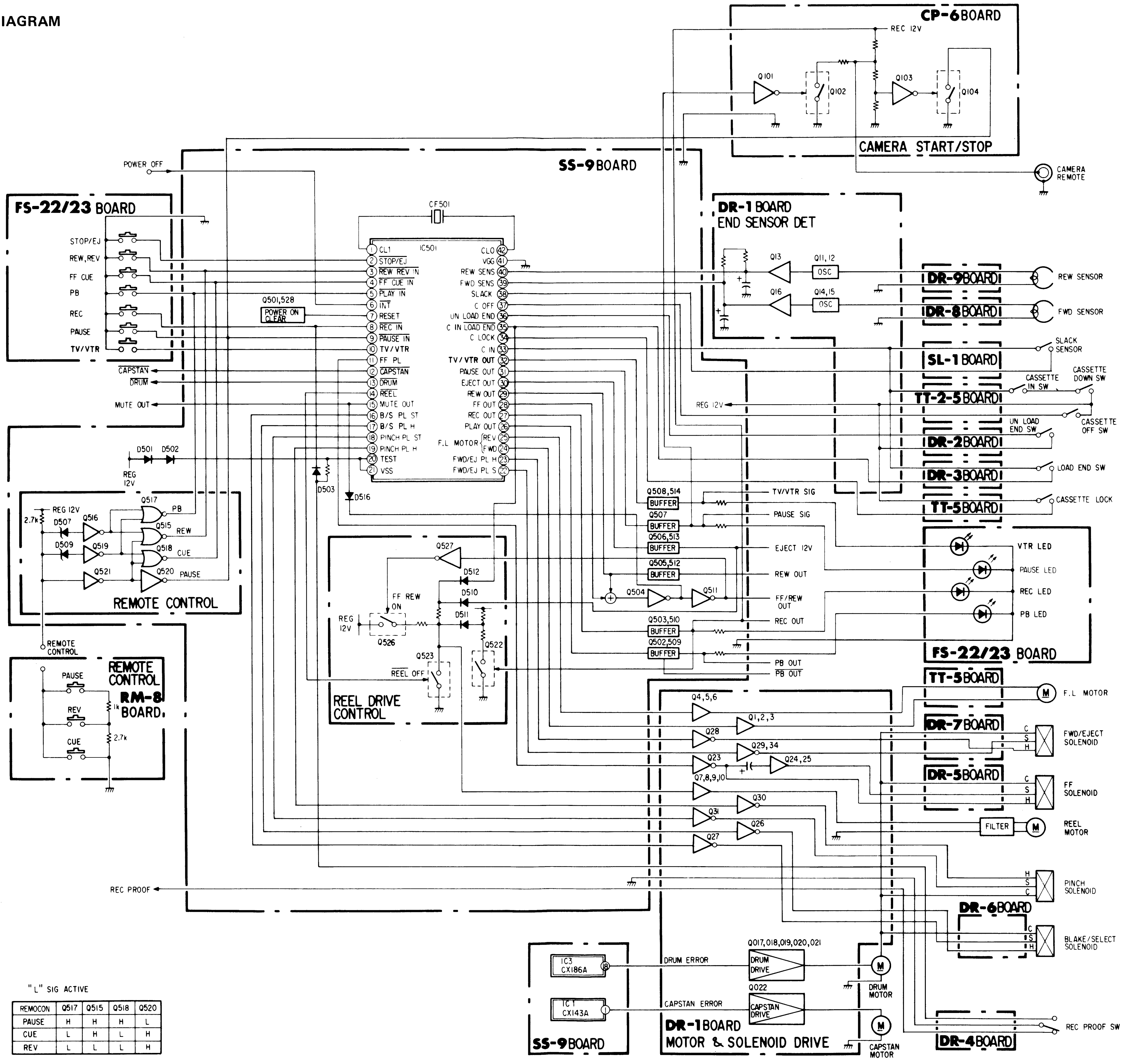
(4) DRUM SERVO TIMING CHART


SPEED SYSTEM (REC) (PB)
(1) PG IN (IC3-①)
(2) FF OUT (IN IC)
11m sec
(3) MM (IC3-㉔) (Free speed Adj.)
(4) SLOPE (IC3-㉒) (GATED)
(5) SPEED ERROR (IC3-⑱)
PHASE SYSTEM (REC)
(6) VIDEO IN
(7) V-SYNC (IC3-⑫)
(8) ½VD (IC3-⑬)
(9) CTL REC CARRIER
(10) SLOPE (IC3-⑦) (GATED)
(2) FF OUT (IN IC)
(11) PG-B DL (IC3-②)
(11') DL-B
(12) PG-A DL (IC3-③)
(12') DL-A
(13) RF SW PULSE (TP-1)
3.75m sec
(14) LOCK PHASE MULT1 (IC3-⑤)
(15) GATE PULSE (IC3-⑥)
(16) PHASE ERROR (IC3-⑩)
PHASE SYSTEM(PB)
(17) INT SYNC (IC3-⑬) (from4.43MHz)
(18) SLOPE (IC3-⑦) (GATED)

(5) CAPSTAN SERVO TIMING CHART


SPEED SYSTEM (REC)(PB)
CAP FLY FG (IC1-⑬)
135m sec
FG PULSE (IC1-⑫)
DL-1 (IC1-⑪)
DL-2 (IC1-⑨)
SLOPE (IC1-⑦)
200μS
SPEED ERROR (IC1-①)
PHASE SYSTEM (REC)
CAP FLY FG CN003 -②
FG PULSE (Q14 COLLECTOR)
28.5ms
MM OUT (Q8 COLLECTOR)
SLOPE (IC1-⑳)
1/2VD
TRACON DL (FIX) (IC3-⑰)
PHASE ERROR (IC1-㉓)
PHASE SYSTEM (PB)
PB CTL (IC2-⑥)
CTL PULSE (TP-7)
1ms
MM OUT (Q8 COLLECTOR)
SLOPE (IC1-⑳)
INT SYNC (IC3-⑬) (from 4.43MHz)
30ms
TRACON CENTER DL (IC3-⑮)
20ms
TRACON DL (IC3-⑯)
GATE PULSE (IC3-⑰)

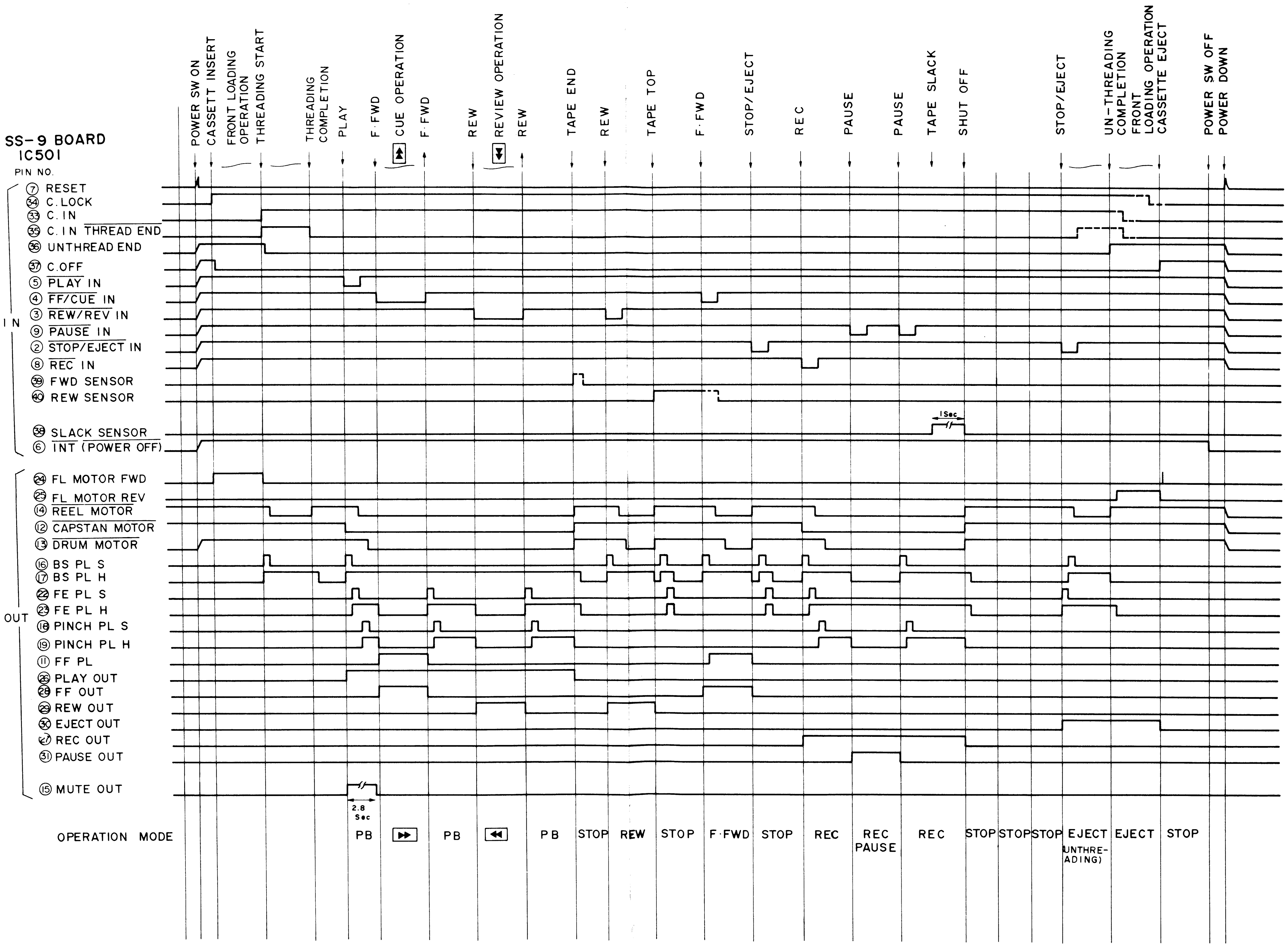
(6) SYSTEM CONTROL BLOCK DIAGRAM


CP-6 BOARD
REC 12V
Q101
Q102
Q103
Q104
CAMERA START/STOP
CAMERA REMOTE
SS-9 BOARD
POWER OFF
FS-22/23 BOARD
STOP/EJ
REW, REV
FF CUE
PB
REC
PAUSE
TV/VTR
CAPSTAN
DRUM
MUTE OUT
CF501
IC501
1 CL1
2 STOP/EJ
3 REW REV IN
4 FF CUE IN
5 PLAY IN
6 INT
7 RESET
8 REC IN
9 PAUSE IN
10 TV/VTR
11 FF PL
12 CAPSTAN
13 DRUM
14 REEL
15 MUTE OUT
16 B/S PL ST
17 B/S PL H
18 PINCH PL ST
19 PINCH PL H
20 TEST
21 VSS
42 CLO
41 VGG
40 REW SENS
39 FWD SENS
38 SLACK
37 C OFF
36 UN LOAD END
35 C IN LOAD END
34 C LOCK
33 C IN
32 TV/VTR OUT
31 PAUSE OUT
30 EJECT OUT
29 REW OUT
28 FF OUT
27 REC OUT
26 PLAY OUT
F.L MOTOR
25 REV
24 FWD
23 FWD/EJ PL H
22 FWD/EJ PL S
Q501,528
POWER ON CLEAR
D501
D502
REG 12V
D503
D516
Q517
Q516
Q515
Q519
Q518
Q521
Q520
PB
REW
CUE
PAUSE
D507
D509
2.7k
REMOTE CONTROL
REMOTE CONTROL RM-8 BOARD
PAUSE
REV
CUE
1k
2.7k
Q527
D512
D510
D511
FF REW ON
REG 12V
Q526
Q523
Q522
REEL OFF
REEL DRIVE CONTROL
DR-1 BOARD END SENSOR DET
Q13
Q11,12
OSC
Q16
Q14,15
OSC
REG 12V
DR-9 BOARD
REW SENSOR
DR-8 BOARD
FWD SENSOR
SL-1 BOARD
SLACK SENSOR
CASSETTE IN SW
CASSETTE DOWN SW
TT-2-5 BOARD
UN LOAD END SW
CASSETTE OFF SW
DR-2 BOARD
DR-3 BOARD
LOAD END SW
TT-5 BOARD
CASSETTE LOCK
Q508,514 BUFFER
TV/VTR SIG
Q507 BUFFER
PAUSE SIG
Q506,513 BUFFER
EJECT 12V
Q505,512 BUFFER
REW OUT
Q504
Q511
FF/REW OUT
REC OUT
Q503,510 BUFFER
Q502,509 BUFFER
PB OUT
PB OUT
VTR LED
PAUSE LED
REC LED
PB LED
FS-22/23 BOARD
TT-5 BOARD
F.L MOTOR
Q4,5,6
Q1,2,3
Q28
Q23
Q29,34
Q24,25
Q7,8,9,10
Q30
Q31
Q26
Q27
DR-7 BOARD
FWD/EJECT SOLENOID
C
S
H
DR-5 BOARD
FF SOLENOID
FILTER
REEL MOTOR
PINCH SOLENOID
DR-6 BOARD
BLAKE/SELECT SOLENOID
REC PROOF
IC3 CX186A
IC1 CX143A
SS-9 BOARD
DRUM ERROR
Q017,018,019,020,021
DRUM DRIVE
DRUM MOTOR
Q022
CAPSTAN ERROR
CAPSTAN DRIVE
CAPSTAN MOTOR
DR-1 BOARD MOTOR & SOLENOID DRIVE
DR-4 BOARD
REC PROOF SW

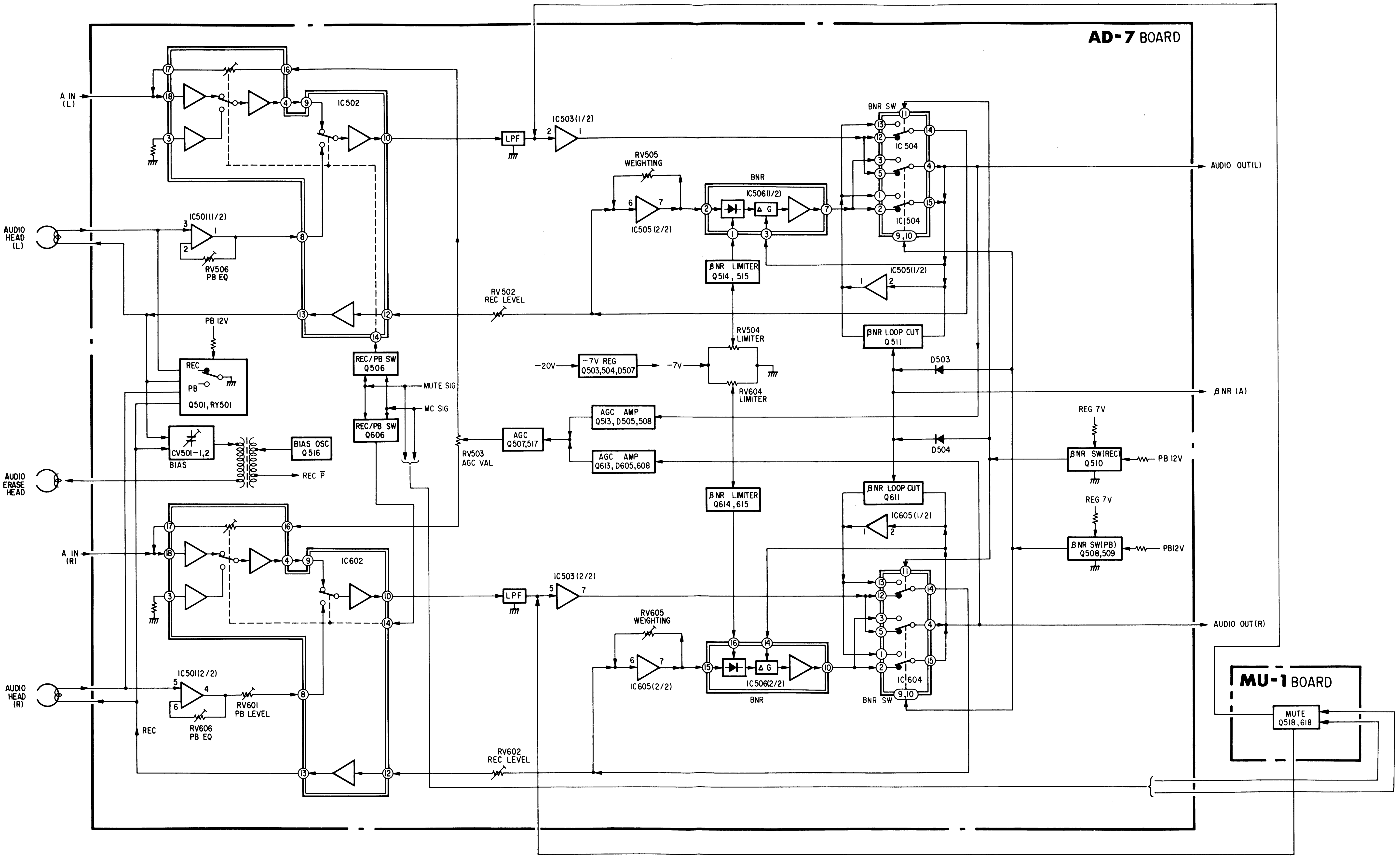
"L" SIG ACTIVE

REMOCON	Q517	Q515	Q518	Q520
PAUSE	H	H	H	L
CUE	L	H	L	H
REV	L	L	L	H

(7) SYSTEM CONTROL TIMING CHART

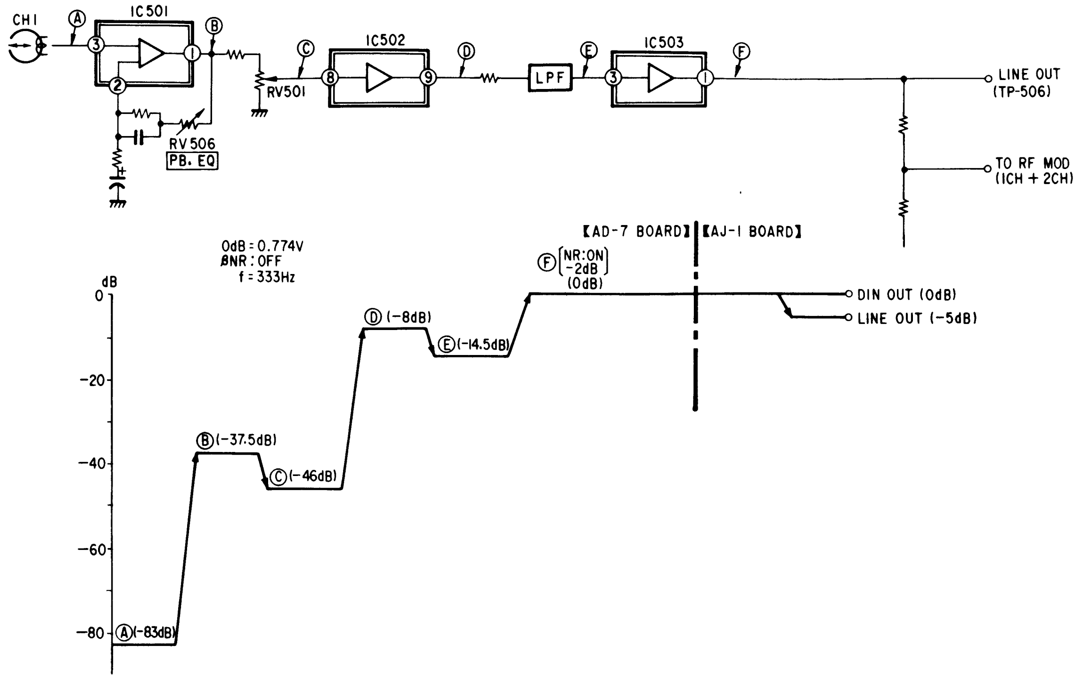

SS-9 BOARD
IC501
PIN NO.
IN
⑦ RESET
㉞ C.LOCK
㉝ C.IN
㉟ C.IN THREAD END
㊱ UNTHREAD END
㊲ C.OFF
⑤ PLAY IN
④ FF/CUE IN
③ REW/REV IN
⑨ PAUSE IN
② STOP/EJECT IN
⑧ REC IN
㊴ FWD SENSOR
㊵ REW SENSOR
㊳ SLACK SENSOR
⑥ INT (POWER OFF)
OUT
㉔ FL MOTOR FWD
㉕ FL MOTOR REV
⑭ REEL MOTOR
⑫ CAPSTAN MOTOR
⑬ DRUM MOTOR
⑯ BS PL S
⑰ BS PL H
㉒ FE PL S
㉓ FE PL H
⑱ PINCH PL S
⑲ PINCH PL H
⑪ FF PL
㉖ PLAY OUT
㉘ FF OUT
㉙ REW OUT
㉚ EJECT OUT
㉗ REC OUT
㉛ PAUSE OUT
⑮ MUTE OUT
POWER SW ON
CASSETT INSERT
FRONT LOADING OPERATION
THREADING START
THREADING COMPLETION
PLAY
F·FWD
▲ CUE OPERATION
F·FWD
REW
▼ REVIEW OPERATION
REW
TAPE END
REW
TAPE TOP
F·FWD
STOP/EJECT
REC
PAUSE
PAUSE
TAPE SLACK
SHUT OFF
STOP/EJECT
UN-THREADING COMPLETION
FRONT LOADING OPERATION
CASSETTE EJECT
POWER SW OFF
POWER DOWN
1Sec
2.8 Sec
OPERATION MODE
PB
▶▶
PB
◀◀
PB
STOP
REW
STOP
F·FWD
STOP
REC
REC PAUSE
REC
STOP
STOP
STOP
EJECT (UNTHREADING)
EJECT
STOP

(8) AUDIO BLOCK DIAGRAM

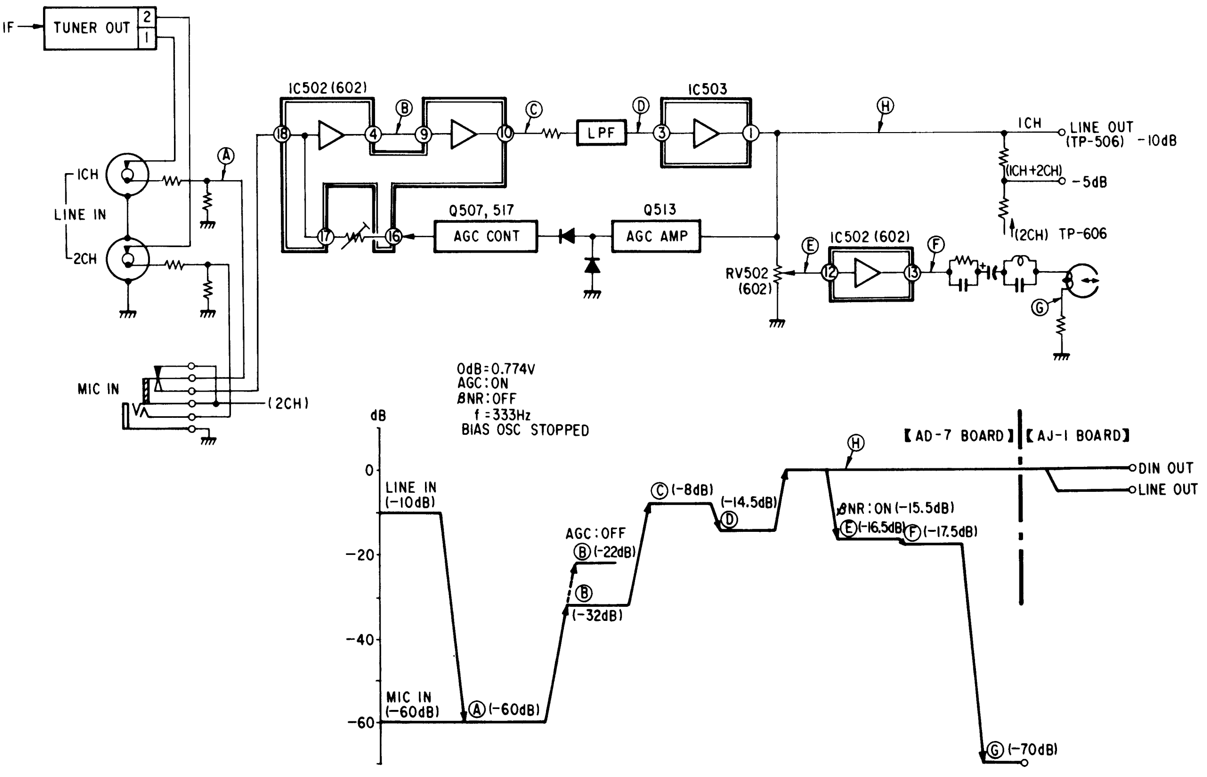

AD-7 BOARD
A IN (L)
IC502
IC503(1/2)
LPF
AUDIO HEAD (L)
IC501(1/2)
RV506 PB EQ
RV502 REC LEVEL
PB 12V
REC
PB
Q501, RY501
REC/PB SW Q506
MUTE SIG
MC SIG
REC/PB SW Q606
CV501-1,2
BIAS
BIAS OSC Q516
REC P̄
AUDIO ERASE HEAD
RV503 AGC VAL
AGC Q507,517
AGC AMP Q513, D505,508
AGC AMP Q613, D605,608
-20V
-7V REG Q503,504,D507
-7V
RV504 LIMITER
RV604 LIMITER
RV505 WEIGHTING
IC505(2/2)
BNR
IC506(1/2)
ΔG
βNR LIMITER Q514, 515
βNR LIMITER Q614, 615
BNR SW
IC 504
IC505(1/2)
βNR LOOP CUT Q511
βNR LOOP CUT Q611
D503
D504
AUDIO OUT(L)
βNR (A)
REG 7V
βNR SW(REC) Q510
PB 12V
βNR SW(PB) Q508,509
PB12V
IC605(1/2)
A IN (R)
IC602
IC503(2/2)
RV605 WEIGHTING
IC605(2/2)
IC506(2/2)
IC604
AUDIO OUT(R)
AUDIO HEAD (R)
IC501(2/2)
RV601 PB LEVEL
RV606 PB EQ
RV602 REC LEVEL
MU-1 BOARD
MUTE Q518,618

(9) AUDIO LEVEL DIAGRAM

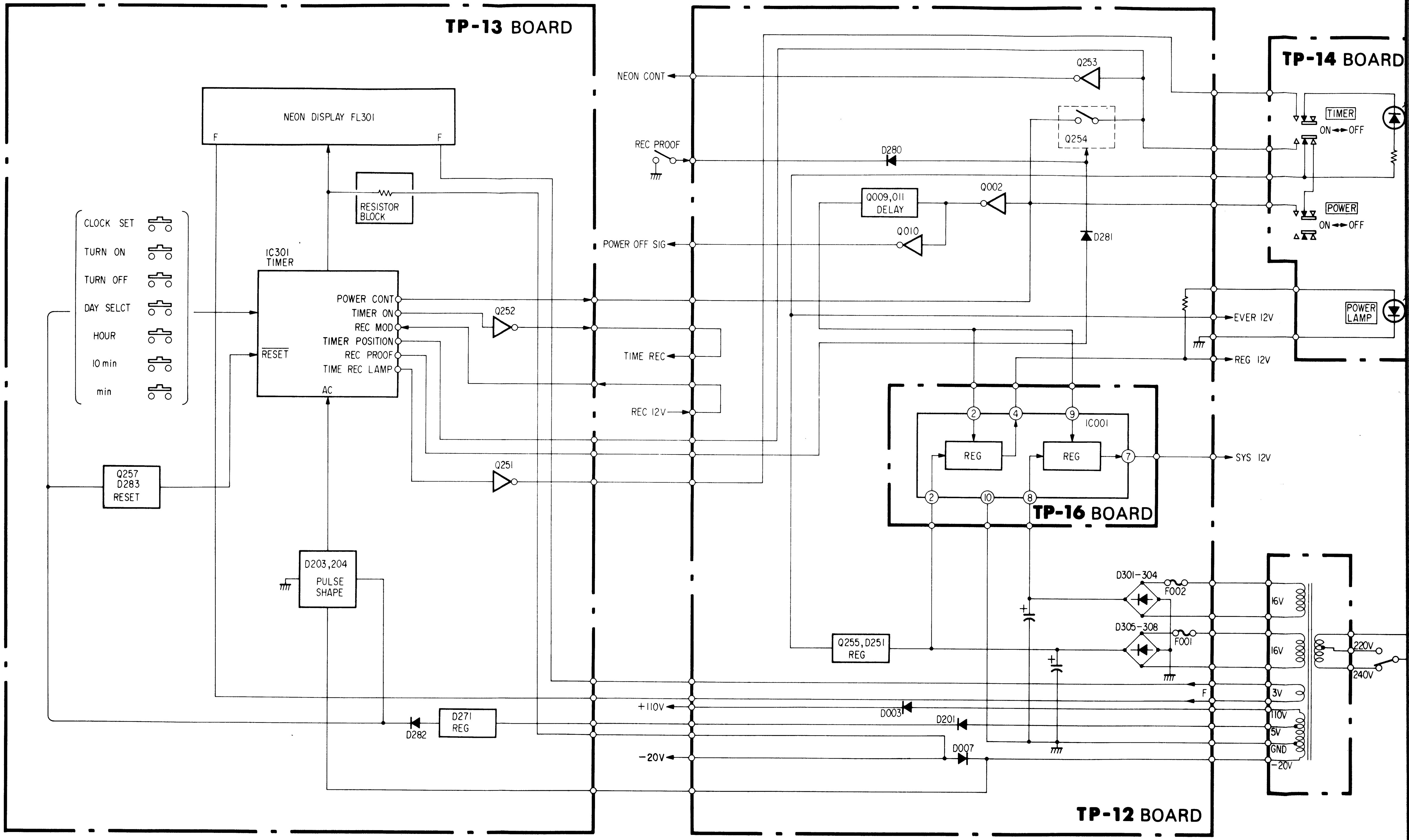
– REC MODE –

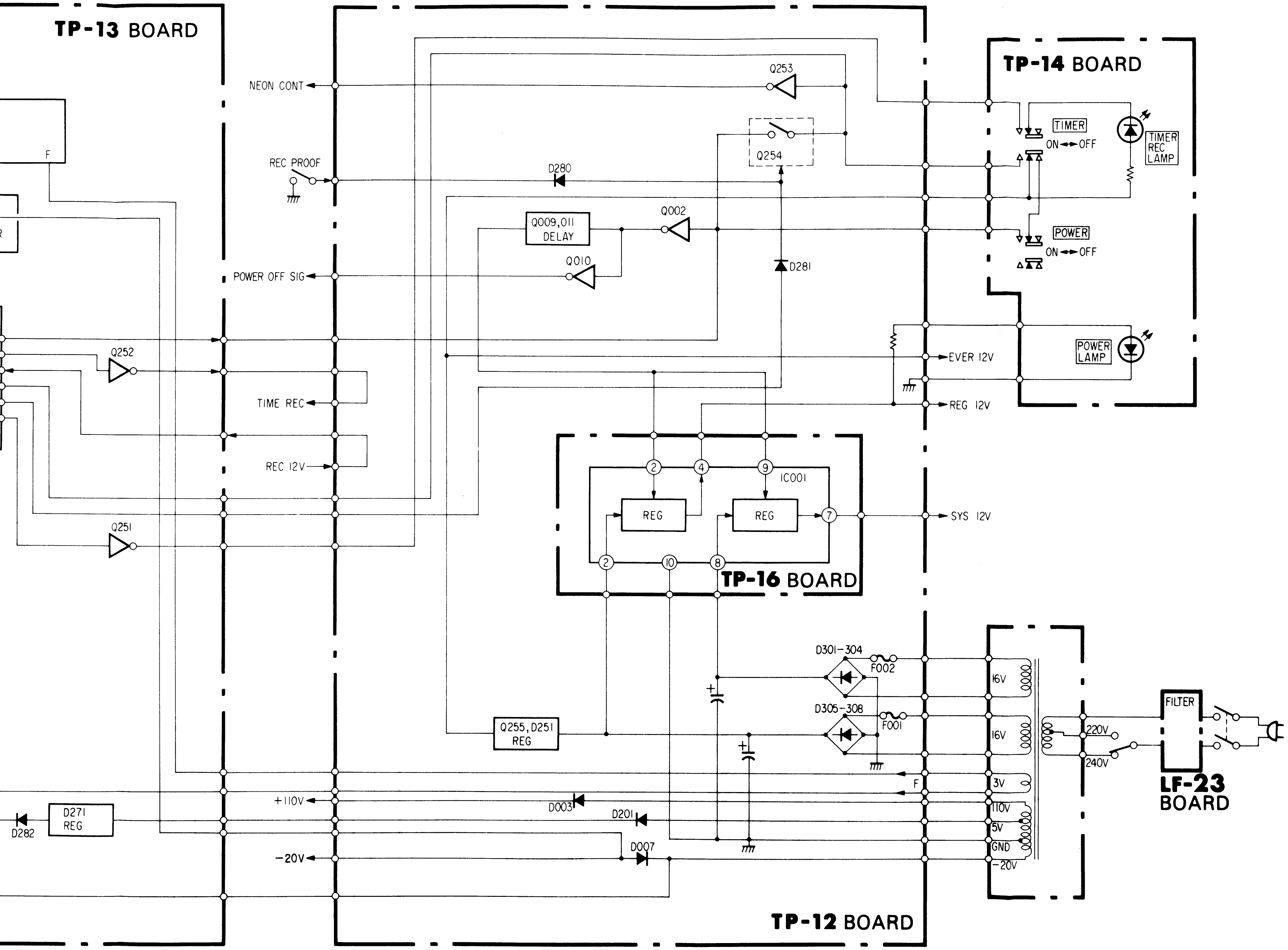

CH1
Ⓐ
IC501
Ⓑ
③
①
②
RV501
RV506
PB. EQ
Ⓒ
IC502
⑧
⑨
Ⓓ
LPF
Ⓔ
IC503
③
①
Ⓕ
LINE OUT
(TP-506)
TO RF MOD
(1CH + 2CH)
0dB = 0.774V
βNR : OFF
f = 333Hz
【AD-7 BOARD】【AJ-1 BOARD】
Ⓕ (NR:ON -2dB) (0dB)
dB
0
-20
-40
-60
-80
Ⓐ(-83dB)
Ⓑ(-37.5dB)
Ⓒ(-46dB)
Ⓓ(-8dB)
Ⓔ(-14.5dB)
DIN OUT (0dB)
LINE OUT (-5dB)

– PB MODE –


IF
TUNER OUT
2
1
1CH
LINE IN
2CH
Ⓐ
MIC IN
(2CH)
IC502 (602)
⑱
④
Ⓑ
⑨
⑩
Ⓒ
LPF
Ⓓ
IC503
③
①
Ⓗ
1CH
LINE OUT
(TP-506) -10dB
(1CH+2CH)
-5dB
(2CH) TP-606
⑰
⑯
Q507, 517
AGC CONT
Q513
AGC AMP
Ⓔ
IC502 (602)
Ⓕ
⑫
⑬
RV502
(602)
Ⓖ
0dB = 0.774V
AGC : ON
βNR : OFF
f = 333Hz
BIAS OSC STOPPED
dB
0
-20
-40
-60
【AD-7 BOARD】【AJ-1 BOARD】
Ⓗ
LINE IN
(-10dB)
MIC IN
(-60dB)
Ⓐ(-60dB)
AGC : OFF
Ⓑ(-22dB)
Ⓑ
(-32dB)
Ⓒ(-8dB)
(-14.5dB)
Ⓓ
βNR : ON (-15.5dB)
Ⓔ(-16.5dB)
Ⓕ(-17.5dB)
Ⓖ(-70dB)
DIN OUT
LINE OUT

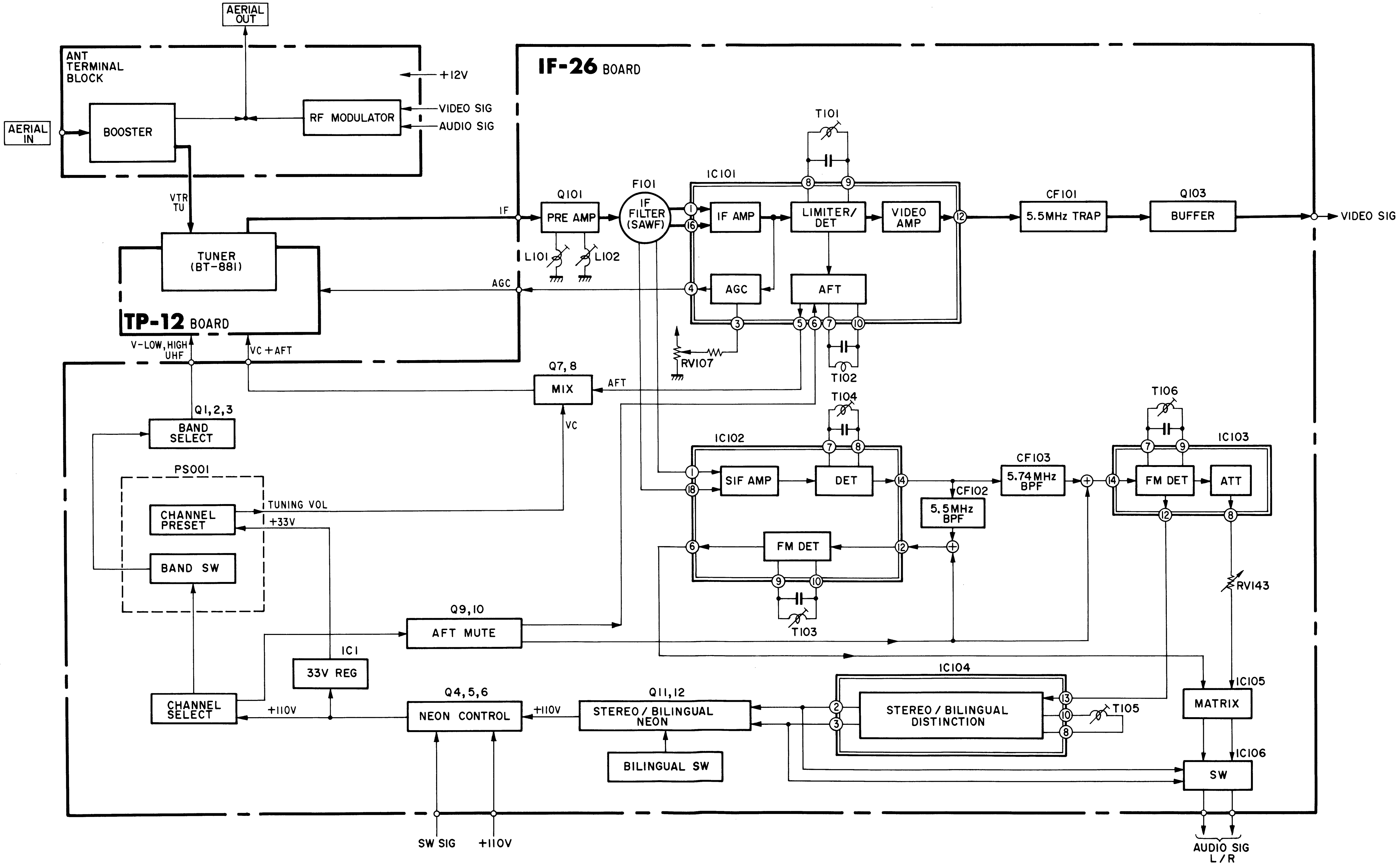
(10) TIMER & POWER SUPPLY BLOCK DIAGRAM


TP-13 BOARD
NEON DISPLAY FL301
F
F
RESISTOR BLOCK
CLOCK SET
TURN ON
TURN OFF
DAY SELCT
HOUR
10 min
min
IC301 TIMER
POWER CONT
TIMER ON
REC MOD
TIMER POSITION
REC PROOF
TIME REC LAMP
RESET
AC
Q252
Q251
Q257 D283 RESET
D203,204 PULSE SHAPE
D282
D271 REG
NEON CONT
REC PROOF
POWER OFF SIG
TIME REC
REC 12V
+110V
-20V
Q253
Q254
D280
Q009,011 DELAY
Q002
Q010
D281
EVER 12V
REG 12V
SYS 12V
IC001
REG
REG
2
4
9
7
2
10
8
TP-16 BOARD
D301-304
F002
D305-308
F001
Q255,D251 REG
D003
D201
D007
F
16V
16V
3V
110V
5V
GND
-20V
220V
240V
TP-12 BOARD
TP-14 BOARD
TIMER
ON OFF
POWER
ON OFF
POWER LAMP

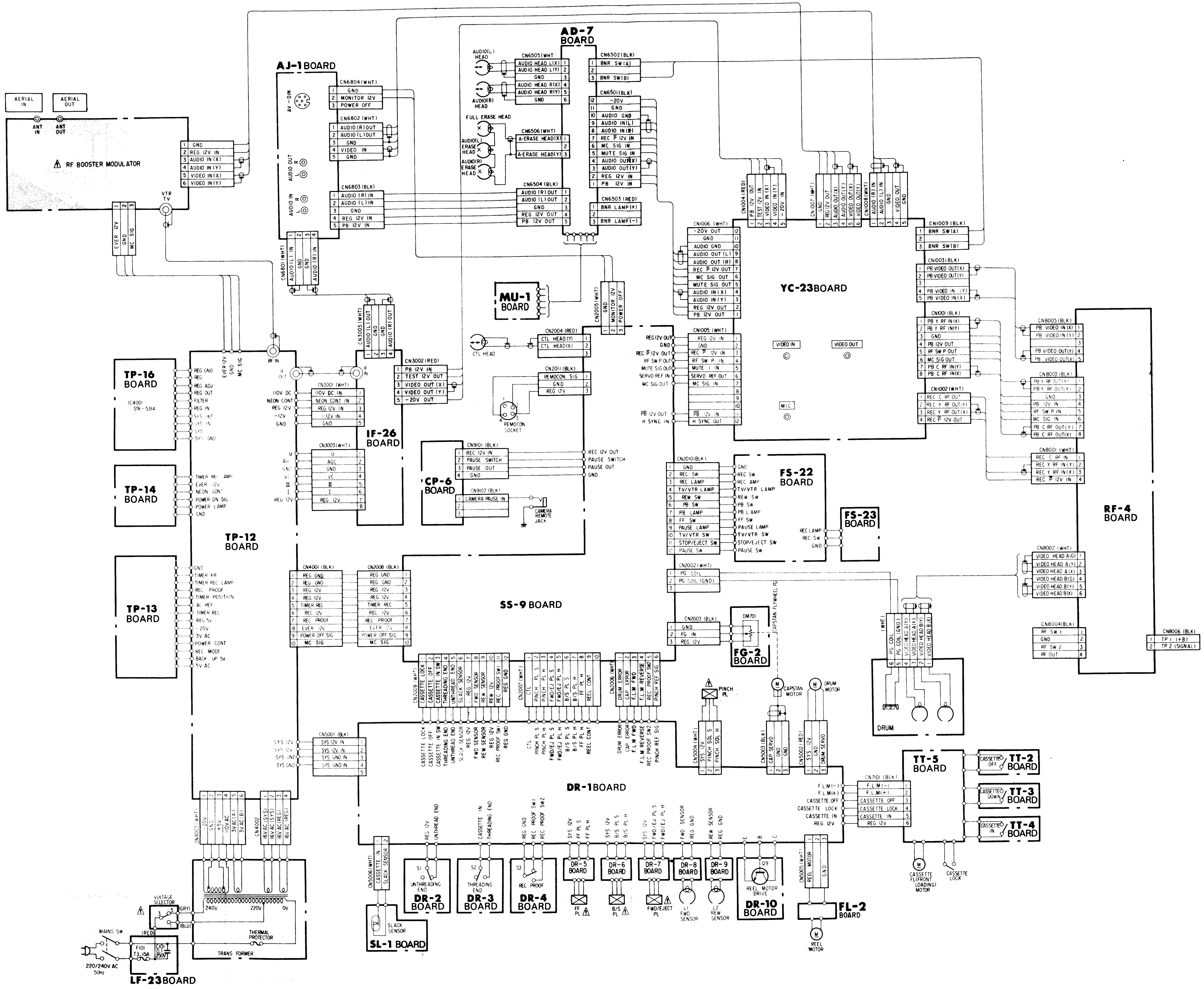


TP-13 BOARD
F
NEON CONT
REC PROOF
POWER OFF SIG
Q252
TIME REC
REC 12V
Q251
+110V
-20V
D282
D271
REG
Q253
Q254
D280
Q009,011
DELAY
Q002
Q010
D281
EVER 12V
REG 12V
SYS 12V
2
4
9
IC001
REG
REG
7
2
10
8
TP-16 BOARD
D301-304
F002
D305-308
F001
Q255,D251
REG
F
D003
D201
D007
TP-12 BOARD
TP-14 BOARD
TIMER
ON→OFF
TIMER
REC
LAMP
POWER
ON→OFF
POWER
LAMP
16V
16V
3V
110V
5V
GND
-20V
220V
240V
FILTER
LF-23
BOARD

(11) TUNER IF BLOCK DIAGRAM

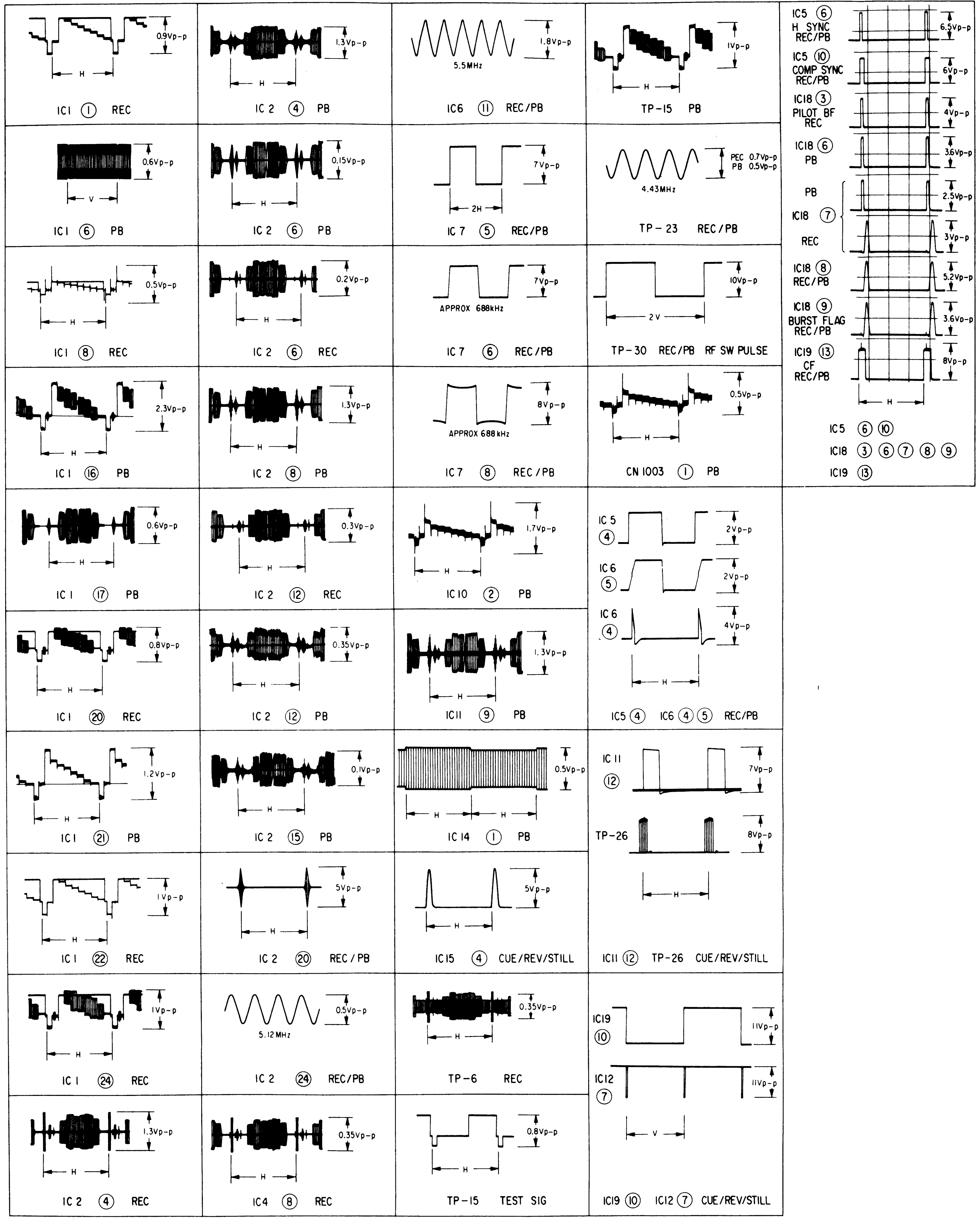

AERIAL OUT
ANT TERMINAL BLOCK
+12V
AERIAL IN
BOOSTER
RF MODULATOR
VIDEO SIG
AUDIO SIG
VTR TU
TUNER (BT-881)
TP-12 BOARD
V-LOW, HIGH UHF
VC +AFT
IF-26 BOARD
IF
AGC
Q101
PRE AMP
L101
L102
F101
IF FILTER (SAWF)
IC101
IF AMP
LIMITER/ DET
VIDEO AMP
AGC
AFT
T101
T102
RV107
CF101
5.5MHz TRAP
Q103
BUFFER
VIDEO SIG
Q7, 8
MIX
AFT
VC
Q1, 2, 3
BAND SELECT
PS001
CHANNEL PRESET
BAND SW
TUNING VOL
+33V
T104
IC102
SIF AMP
DET
FM DET
T103
CF102
5.5MHz BPF
CF103
5.74MHz BPF
T106
IC103
FM DET
ATT
RV143
Q9, 10
AFT MUTE
IC1
33V REG
CHANNEL SELECT
+110V
Q4, 5, 6
NEON CONTROL
+110V
Q11, 12
STEREO / BILINGUAL NEON
BILINGUAL SW
IC104
STEREO / BILINGUAL DISTINCTION
T105
IC105
MATRIX
IC106
SW
SW SIG
+110V
AUDIO SIG L / R

3-3. FRAME SCHEMATIC DIAGRAM

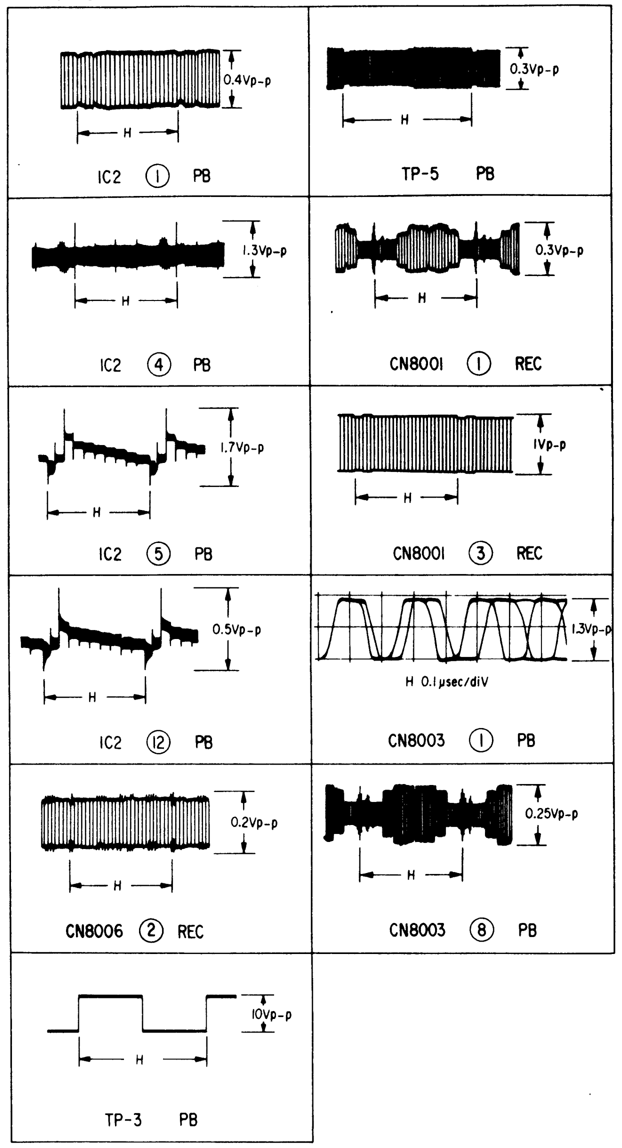

AD-7 BOARD
AJ-1 BOARD
AERIAL IN
AERIAL OUT
ANT IN
ANT OUT
RF BOOSTER MODULATOR
VTR TV
CN6804 (WHT)
CN6802 (WHT)
CN6803 (BLK)
CN6801 (WHT)
AV-DIN
AUDIO OUT
AUDIO IN
AUDIO(L) HEAD
AUDIO(R) HEAD
FULL ERASE HEAD
CN6505 (WHT)
CN6506 (WHT)
CN6504 (BLK)
CN6502 (BLK)
CN6501 (BLK)
CN6503 (RED)
AUDIO HEAD L(X)
AUDIO HEAD L(Y)
AUDIO HEAD R(X)
AUDIO HEAD R(Y)
A-ERASE HEAD(X)
A-ERASE HEAD(Y)
BNR SW(A)
BNR SW(B)
BNR LAMP(+)
BNR LAMP(−)
MU-1 BOARD
CTL HEAD
REMOCON SOCKET
CP-6 BOARD
CAMERA REMOTE JACK
TP-16 BOARD
IC4001 STK-5314
TP-14 BOARD
TP-13 BOARD
TP-12 BOARD
IF-26 BOARD
CN3001 (WHT)
CN3002 (RED)
CN3003 (WHT)
CN3005 (WHT)
SS-9 BOARD
CN4001 (BLK)
CN2008 (BLK)
CN2004 (RED)
CN2011 (BLK)
CN9101 (BLK)
CN9102 (BLK)
CN2005 (WHT)
CN2010 (BLK)
CN2002 (WHT)
CN2003 (BLK)
CN2009 (WHT)
CN2007 (WHT)
CN2006 (WHT)
YC-23 BOARD
CN1006 (WHT)
CN1005 (WHT)
CN1004 (RED)
CN1007 (WHT)
CN1008 (WHT)
CN1009 (BLK)
CN1003 (BLK)
CN1001 (BLK)
CN1002 (WHT)
VIDEO IN
VIDEO OUT
MIC
FS-22 BOARD
FS-23 BOARD
FG-2 BOARD
DM701
CAPSTAN FLYWHEEL FG
RF-4 BOARD
CN8005 (BLK)
CN8003 (BLK)
CN8001 (WHT)
CN8002 (WHT)
CN8004 (BLK)
CN8006 (BLK)
DRUM
PINCH PL
CAPSTAN MOTOR
DRUM MOTOR
DR-1 BOARD
CN5001 (BLK)
CN5004 (WHT)
CN5003 (BLK)
CN5002 (RED)
CN5006 (WHT)
CN5005 (WHT)
CN7101 (BLK)
TT-5 BOARD
TT-2 BOARD
TT-3 BOARD
TT-4 BOARD
CASSETTE FL(FRONT LOADING) MOTOR
CASSETTE LOCK
DR-2 BOARD
DR-3 BOARD
DR-4 BOARD
DR-5 BOARD
DR-6 BOARD
DR-7 BOARD
DR-8 BOARD
DR-9 BOARD
DR-10 BOARD
UNTHREADING END
THREADING END
REC PROOF
FF PL
B/S PL
FWD/EJECT PL
L1 FWD SENSOR
L2 REW SENSOR
Q9 REEL MOTOR DRIVE
FL-2 BOARD
REEL MOTOR
SL-1 BOARD
SLACK SENSOR
CN4001 (WHT)
CN4002
VOLTAGE SELECTOR
240V
220V
0V
THERMAL PROTECTOR
TRANS FORMER
MAINS SW
F101 T3.15A
220/240V AC 50Hz
LF-23 BOARD

3-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

YC-23BOARD



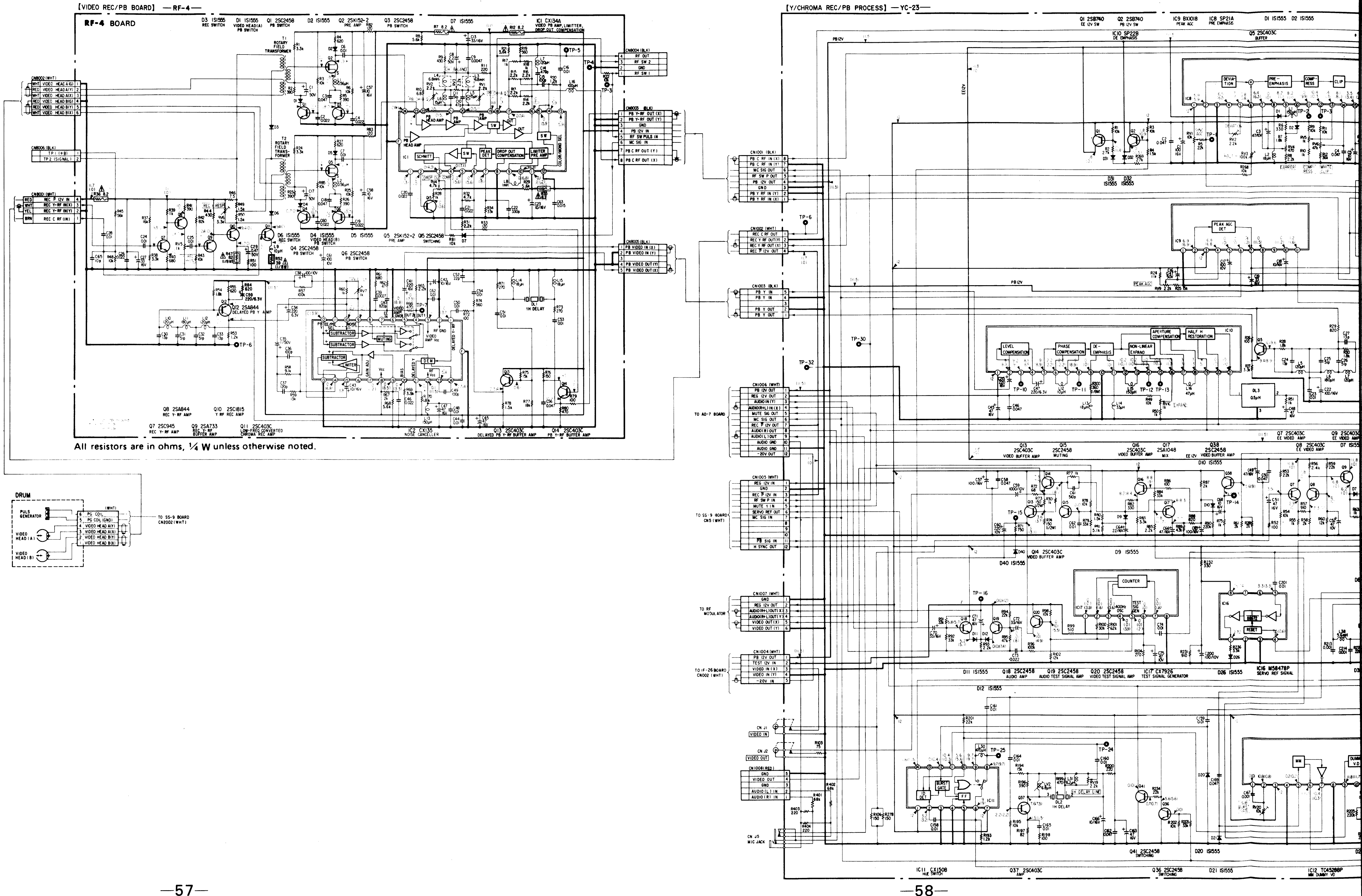
RF-4BOARD



When indicating parts by reference number, please include the board name.

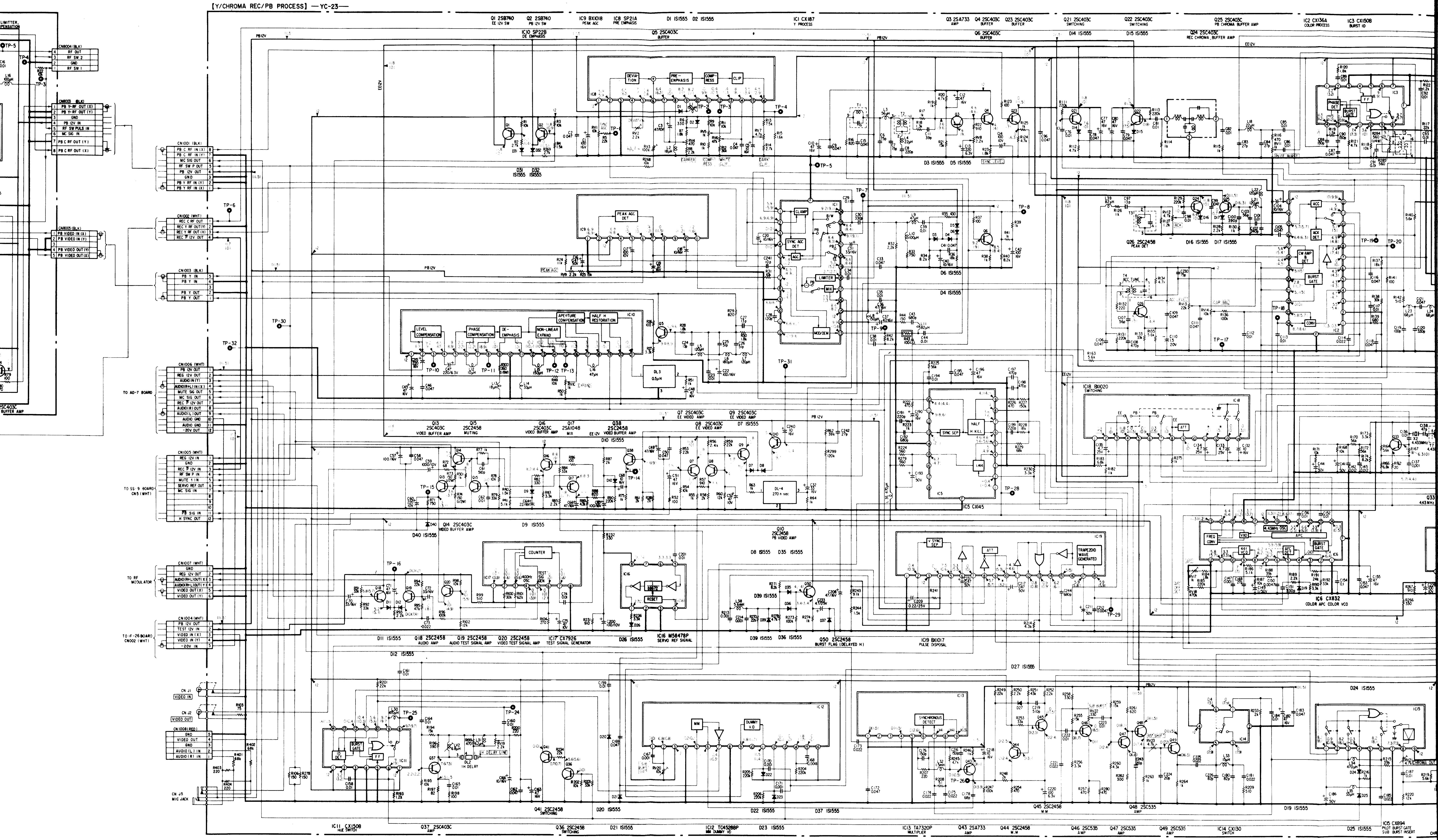
YC-23 (Y & CHROMA SIGNALS RECORD/PLAYBACK PROCESS, SERVO REFERENCE, SIGNAL GEN, HIGH SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) BOARDS SCHEMATIC DIAGRAM

– Ref. No. YC-23 BOARD : 1000 series, RF-4 BOARD : 8000 series –

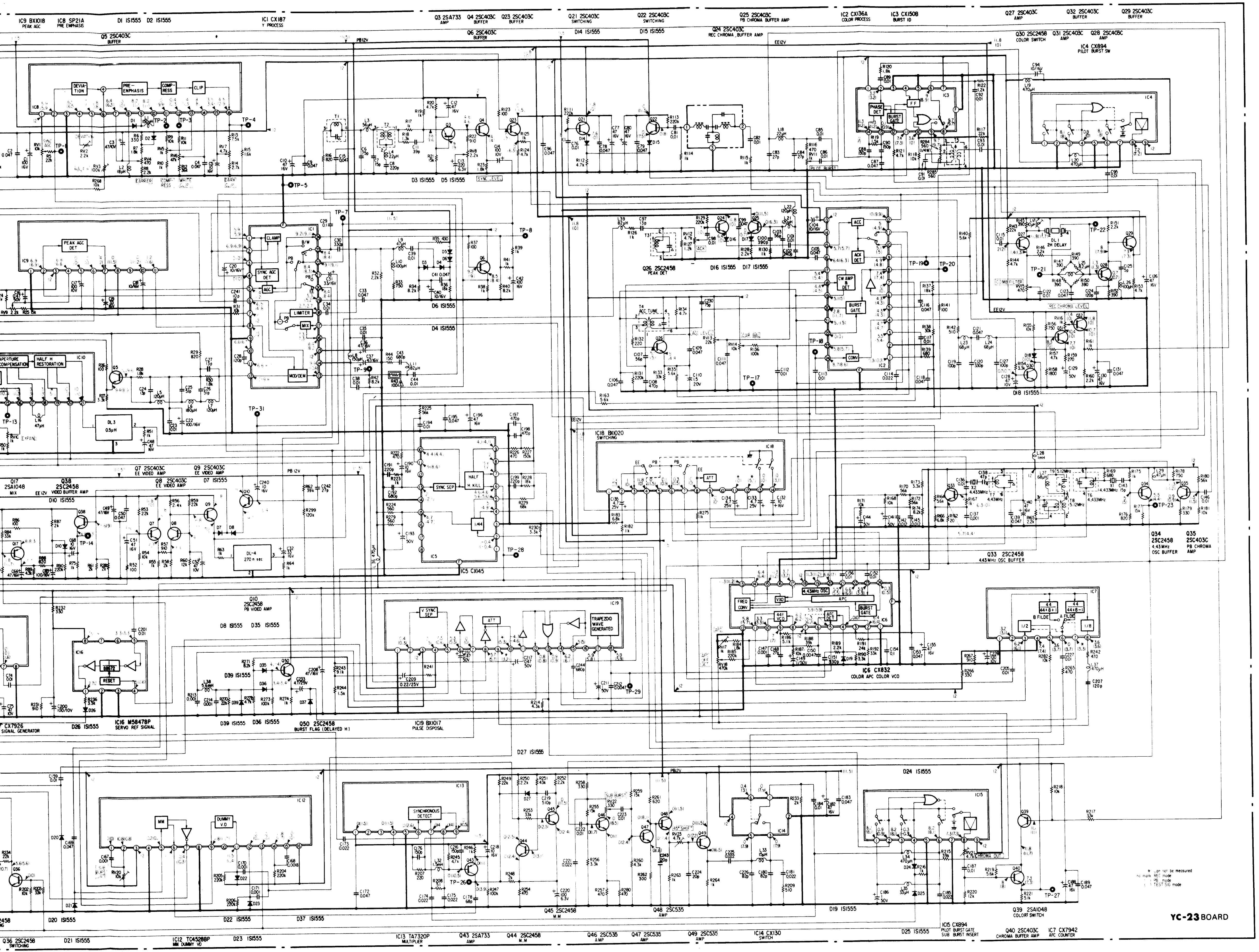

[VIDEO REC/PB BOARD] —RF-4—
RF-4 BOARD
[Y/CHROMA REC/PB PROCESS] —YC-23—
DRUM
TO SS-9 BOARD CN2002 (WHT)
TO AD-7 BOARD
TO SS-9 BOARD CN5 (WHT)
TO RF MODULATOR
TO IF-26 BOARD CN002 (WHT)

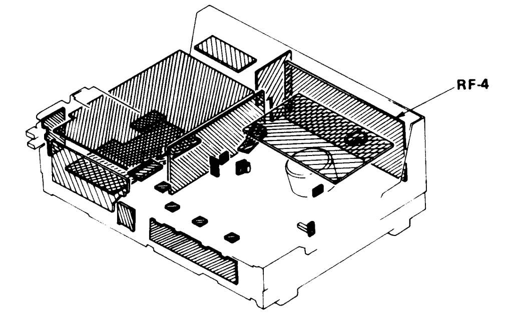
All resistors are in ohms, 1/4 W unless otherwise noted.

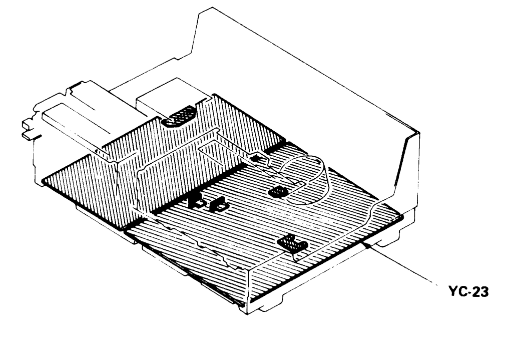
SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) BOARDS SCHEMATIC DIAGRAM


[Y/CHROMA REC/PB PROCESS] —YC-23—
Q1 2SB740 EE 12V SW
Q2 2SB740 PB 12V SW
IC10 SP22B DE EMPHASIS
IC9 BX1018 PEAK AGC
IC8 SP21A PRE EMPHASIS
D1 IS1555 D2 IS1555
Q5 2SC403C BUFFER
IC1 CX187 Y PROCESS
Q3 2SA733 AMP
Q4 2SC403C BUFFER
Q23 2SC403C BUFFER
Q6 2SC403C BUFFER
Q21 2SC403C SWITCHING
Q22 2SC403C SWITCHING
Q25 2SC403C PB CHROMA BUFFER AMP
Q24 2SC403C REC CHROMA BUFFER AMP
IC2 CX136A COLOR PROCESS
IC3 CX1508 BURST ID
DEVIATION
PRE-EMPHASIS
COMPRESS
CLIP
PEAK AGC DET
LEVEL COMPENSATION
PHASE COMPENSATION
DE-EMPHASIS
NON-LINEAR EXPAND
APERTURE COMPENSATION
HALF H RESTORATION
CLAMP
SYNC AGC DET
AGC
LIMITER
MIX
MOD/DEM
PHASE DET
BURST GATE
FF
ACC
ACK DET
CW AMP DET
BURST GATE
CONV
SYNC SEP
HALF H KILL
IC5 CX145
IC18 BX1020 SWITCHING
IC6 CX832 COLOR APC COLOR VCO
FREQ CONV
VXO
APC
4.43MHz OSC
BURST GATE
V SYNC SEP
ATT
TRAPEZOID WAVE GENERATED
IC19 BX1017 PULSE DISPOSAL
COUNTER
TEST SIG
IC16 M58478P SERVO REF SIGNAL
RESET
IC17 CX7926 TEST SIGNAL GENERATOR
DL-4 270ns sec
DL3 0.5µH
Q13 2SC403C VIDEO BUFFER AMP
Q15 2SC2458 MUTING
Q16 2SC403C VIDEO BUFFER AMP
Q17 2SA1048 MIX
Q38 2SC2458 VIDEO BUFFER AMP
Q7 2SC403C EE VIDEO AMP
Q8 2SC403C EE VIDEO AMP
Q9 2SC403C EE VIDEO AMP
D7 IS1555
D40 IS1555
Q14 2SC403C VIDEO BUFFER AMP
D9 IS1555
Q10 2SC2458 PB VIDEO AMP
D8 IS1555 D35 IS1555
D39 IS1555 D36 IS1555
Q50 2SC2458 BURST FLAG (DELAYED H)
D11 IS1555
Q18 2SC2458 AUDIO AMP
Q19 2SC2458 AUDIO TEST SIGNAL AMP
Q20 2SC2458 VIDEO TEST SIGNAL AMP
D26 IS1555
D12 IS1555
D27 IS1555
ID DET
BURST GATE
FF
IH DELAY
IH DELAY LINE
MM
DUMMY V.D.
SYNCHRONOUS DETECT
IC11 CX1508 HUE SWITCH
Q37 2SC403C AMP
Q41 2SC2458 SWITCHING
Q36 2SC2458 SWITCHING
D20 IS1555
D21 IS1555
IC12 TC4528BP MM DUMMY VD
D23 IS1555
D37 IS1555
IC13 TA7320P MULTIPLIER
Q43 2SA733 AMP
Q44 2SC2458 M.M
Q45 2SC2458 M.M
Q46 2SC535 AMP
Q47 2SC535 AMP
Q48 2SC535 AMP
Q49 2SC535 AMP
IC14 CX130 SWITCH
D19 IS1555
D24 IS1555
IC15 CX894 PILOT BURST GATE SUB BURST INSERT
D25 IS1555
CN1001 (BLK)
CN1002 (WHT)
CN1003 (BLK)
CN1006 (WHT)
CN1005 (WHT)
CN1007 (WHT)
CN1004 (WHT)
CN1008 (RED)
CN8004 (BLK)
CN8003 (BLK)
CN8005 (BLK)
TO AD-7 BOARD
TO SS-9 BOARD CN5 (WHT)
TO RF MODULATOR
TO IF-26 BOARD CN002 (WHT)
CN J1 VIDEO IN
CN J2 VIDEO OUT
CN J5 MIC JACK
TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8 TP-9 TP-10 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17 TP-18 TP-19 TP-20 TP-24 TP-25 TP-26 TP-28 TP-29 TP-30 TP-31 TP-32
PB 12V
EE 12V
REG 12V

ARDS SCHEMATIC DIAGRAM


IC9 BX1018 PEAK AGC
IC8 SP21A PRE EMPHASIS
D1 1S1555 D2 1S1555
IC1 CX187 Y PROCESS
Q3 2SA733 AMP
Q4 2SC403C BUFFER
Q23 2SC403C BUFFER
Q21 2SC403C SWITCHING
Q22 2SC403C SWITCHING
Q25 2SC403C PB CHROMA BUFFER AMP
Q24 2SC403C REC CHROMA BUFFER AMP
IC2 CX136A COLOR PROCESS
IC3 CX1508 BURST ID
Q27 2SC403C AMP
Q32 2SC403C BUFFER
Q29 2SC403C BUFFER
Q30 2SC2458 COLOR SWITCH
Q31 2SC403C AMP
Q28 2SC403C AMP
IC4 CX894 PILOT BURST SW
DEVIATION
PRE-EMPHASIS
COMPRESS
CLIP
PEAK AGC DET
CLAMP
SYNC AGC DET
AGC
LIMITER
MIX
MOD/DEM
ACC
ACK DET
CW AMP B DET
BURST GATE
CONV
PHASE DET
BURST GATE
F.F
APERTURE COMPENSATION
HALF H RESTORATION
IC10
DL3 0.5μH
Q26 2SC2458 PEAK DET
D16 1S1555 D17 1S1555
IC18 BX1020 SWITCHING
SYNC SEP
HALF H.KILL
IC5 CX145
Q7 2SC403C EE VIDEO AMP
Q9 2SC403C EE VIDEO AMP
Q8 2SC403C EE VIDEO AMP
Q38 2SC2458 VIDEO BUFFER AMP
Q17 2SA1048 MIX
DL-4 270 n sec
Q10 2SC2458 PB VIDEO AMP
Q33 2SC2458 4.43MHz OSC BUFFER
Q34 2SC2458 4.43MHz OSC BUFFER
Q35 2SC403C PB CHROMA AMP
FREQ CONV
VXO
4.43MHz OSC
APC
BURST GATE
IC6 CX832 COLOR APC COLOR VCO
IC7
1/2
44 44(B+)
44 44(B-)
B FILDE
A FILDE
1/8
IC16 M58478P SERVO REF SIGNAL
RESET
IC19 BX1017 PULSE DISPOSAL
V SYNC SEP
ATT
TRAPEZOID WAVE GENERATED
Q50 2SC2458 BURST FLAG (DELAYED H)
F CX7926 SIGNAL GENERATOR
D26 1S1555
IC12 TC4528BP MM DUMMY VD
MM
DUMMY V.D
IC13 TA7320P MULTIPLIER
SYNCHRONOUS DETECT
Q43 2SA733 AMP
Q44 2SC2458 M.M
Q45 2SC2458 M.M
Q46 2SC535 AMP
Q47 2SC535 AMP
Q48 2SC535 AMP
Q49 2SC535 AMP
IC14 CX130 SWITCH
IC15 CX894 PILOT BURST GATE SUB BURST INSERT
Q40 2SC403C CHROMA BUFFER AMP
IC7 CX7942 AFC COUNTER
Q39 2SA1048 COLOR SWITCH
Q36 2SC2458 SWITCHING
YC-23 BOARD
TP-1
TP-2
TP-3
TP-4
TP-5
TP-7
TP-8
TP-9
TP-13
TP-14
TP-17
TP-18
TP-19
TP-20
TP-21
TP-22
TP-23
TP-26
TP-27
TP-28
TP-29
TP-31





Note:

- All resistors are in ohms, 1/8W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

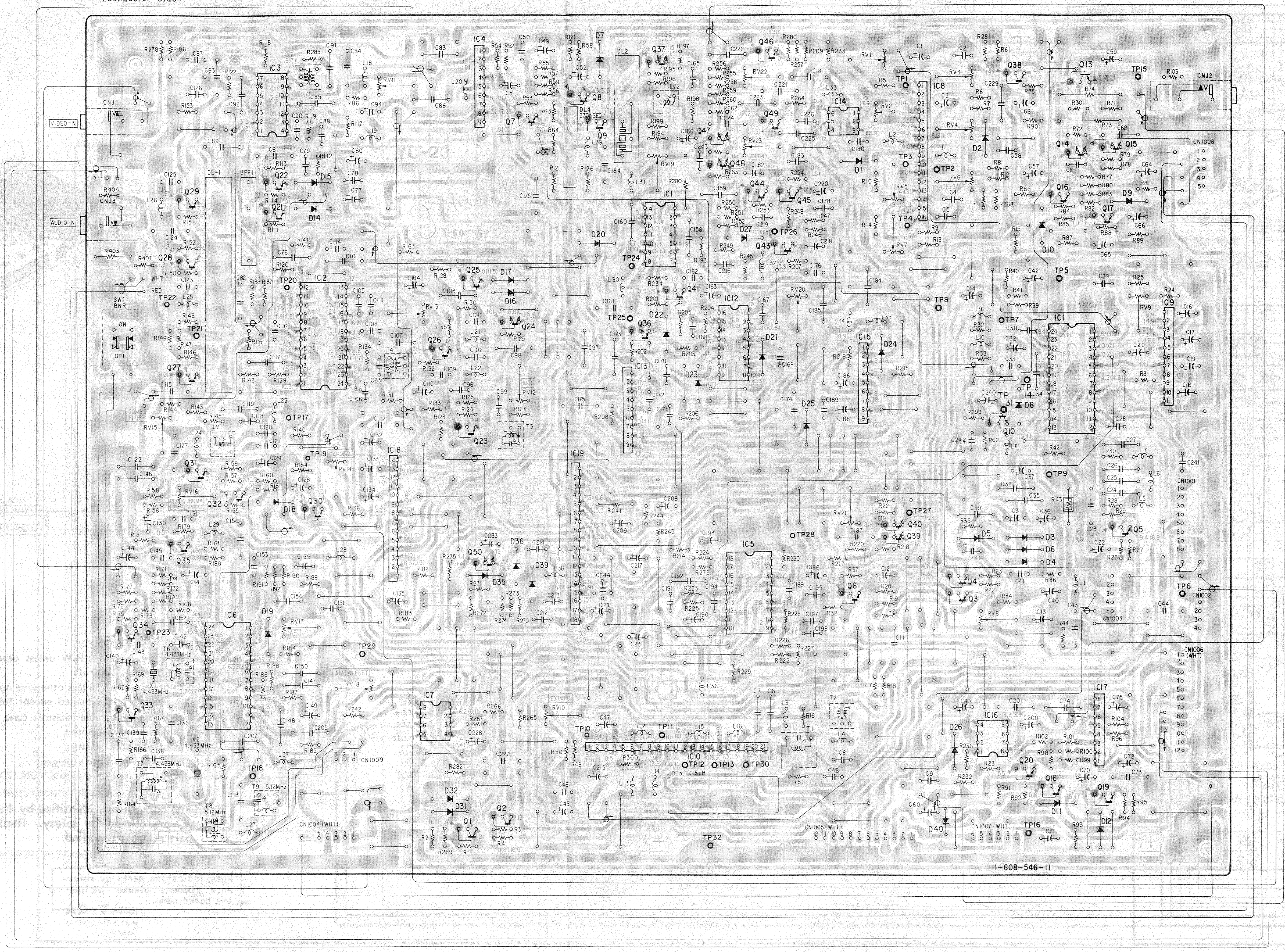
When indicating parts by reference number, please include the board name.

YC-23 (Y & CHROMA SIGNALS RECORD/PLAYBACK PROCESS, SERVO REFERENCE, SIGNAL GEN, HIGH SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) PRINTED WIRING BOARDS

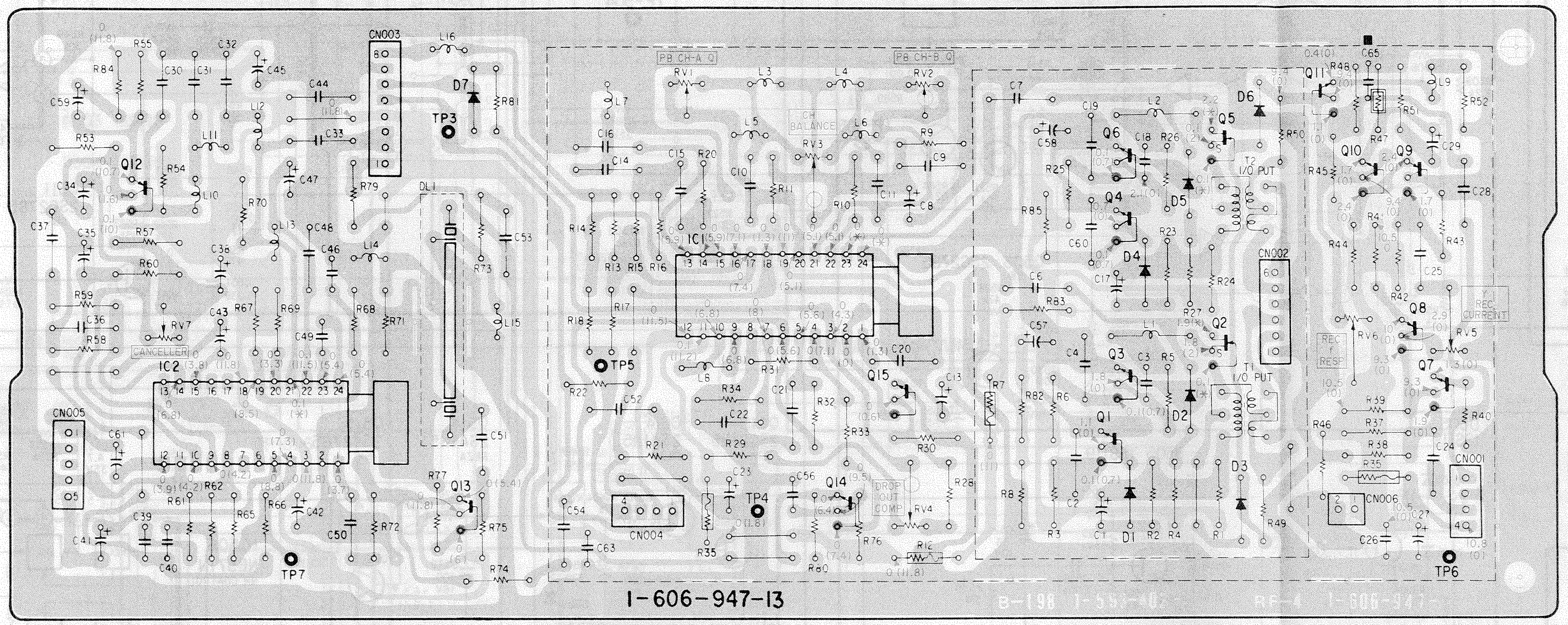
– Ref. No. YC-23 BOARD : 1000 series, RF-4 BOARD : 8000 series –

IC, Q	D	ADJ (TP, RV)
46	7	RV1
37		RV22
		RV3
38		TP15
		RV2, TP1
IC4		
8		
IC3		
13		
7 IC14		
9, 49		
47	2	
		RV23
14, 15		
IC8	1	TP3
48		TP2
	15	
		RV6
22		
44, 45		RV5
16	9	
29	14	
21 17		
	10	TP4
IC11	27	TP26
	20	
43		PV7
28		TP24
		TP5
25	17	TP20
41	16	
		RV9
		RV20
24		TP8
		TP22
36	22	TP25
IC2, IC12		RV13
26 IC9	21, 24	
27 IC15, IC1	23	
	8	
IC13		RV12
10	25	TP17
23		RV15
		TP19
		RV14
31		TP9
32	18	RV16
30, IC18		TP27
40		RV21
5		
39	5 3	TP28
IC19	6	
35 50	36 4	
4	35	
	39	
6 3		TP6
IC05		
		RV8
		RV17
34	19	TP23
		TP29
IC6		
		RV18
33		RV10
IC7		
		TP10, TP11
IC17		
IC16	26	
		TP12
		TP13
20		TP30
		TP18
18		
19	32 11	
	31	
	40, 12	
2		
1		TP16
		TP32

【Y/CHROMA REC/PB PROCESS】 —YC-23—
(Conductor Side)


VIDEO IN
AUDIO IN
CNJ1
CNJ3
CNJ2
SW1 BNR
ON
OFF
WHT
RED
YC-23
1-608-546
1-608-546-11
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
DL1
DL2
DL4
BPF1
COMB FILTER
CHROMA
CARDBAL
AFC
AFC OFFSET
EXPAND
4.433MHz
5.12MHz
X1
X2
T2
T4
T7
T8
T9
CN1001
CN1002
CN1003
CN1004 (WHT)
CN1005 (WHT)
CN1006 (WHT)
CN1007 (WHT)
CN1008
CN1009
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP15
TP16
TP17
TP18
TP19
TP20
TP21
TP22
TP23
TP24
TP25
TP26
TP27
TP28
TP29
TP30
TP31
TP32

【VIDEO REC/PB BOARD】—RF-4—
(Conductor Side)

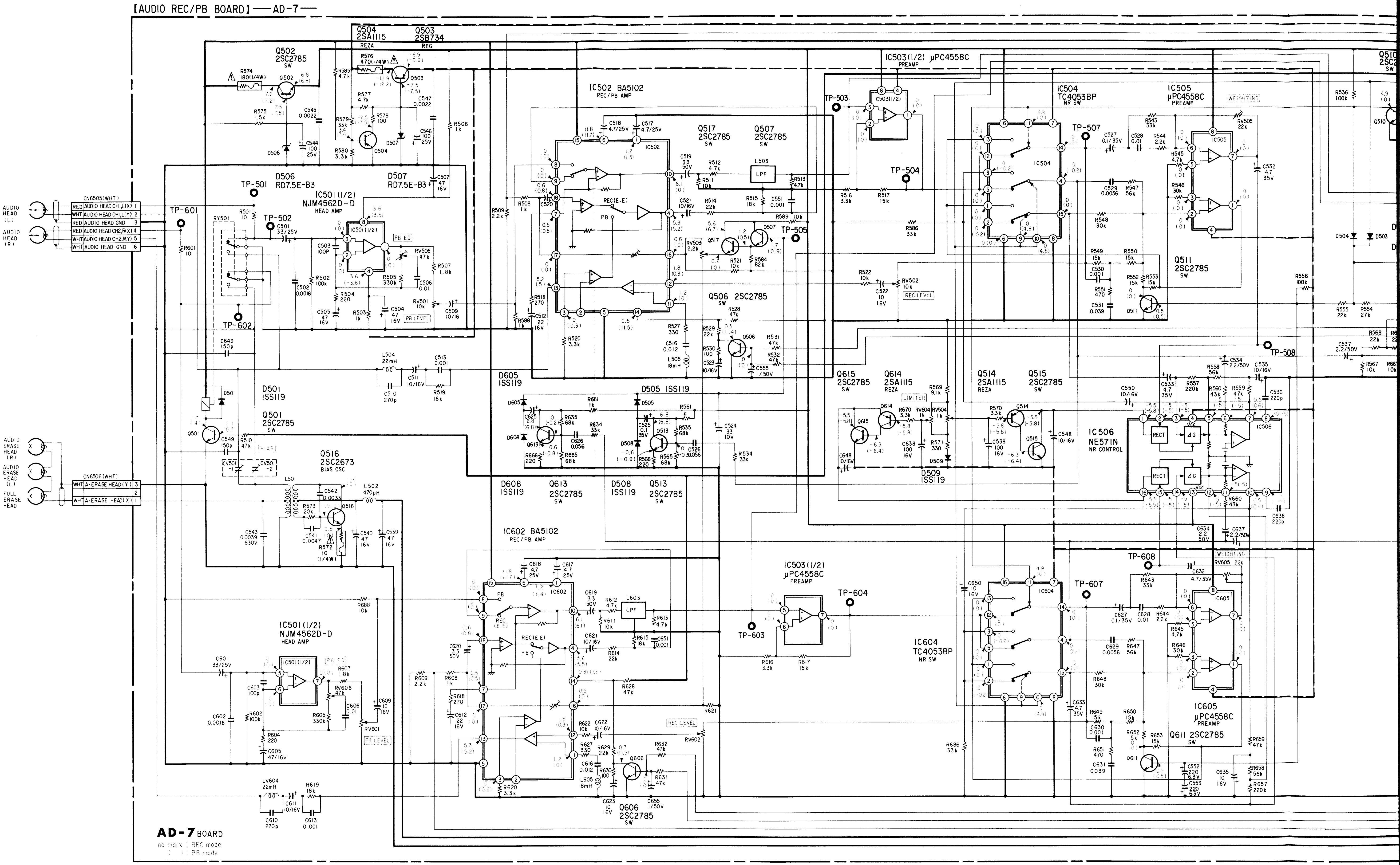

CN003
PB CH-A Q
PB CH-B Q
RV1
RV2
RV3
RV4
RV5
RV6
RV7
TP3
TP4
TP5
TP6
TP7
IC1
IC2
CN002
CN004
CN005
CN006
CN001
DL1
REC CURRENT
I/O PUT
1-606-947-13

IC, Q	D	ADJ (TP, RV)
11	7	
	6	TP3 RV2
		RV1
6 5		
12 10 9	5	
4		RV3
	4	
IC1		
		RV7
8		RV6, RV5
2		TP5
3 7		
15	2	
IC2		
1		
13 14	1 3	TP4
		TP6
		TP7

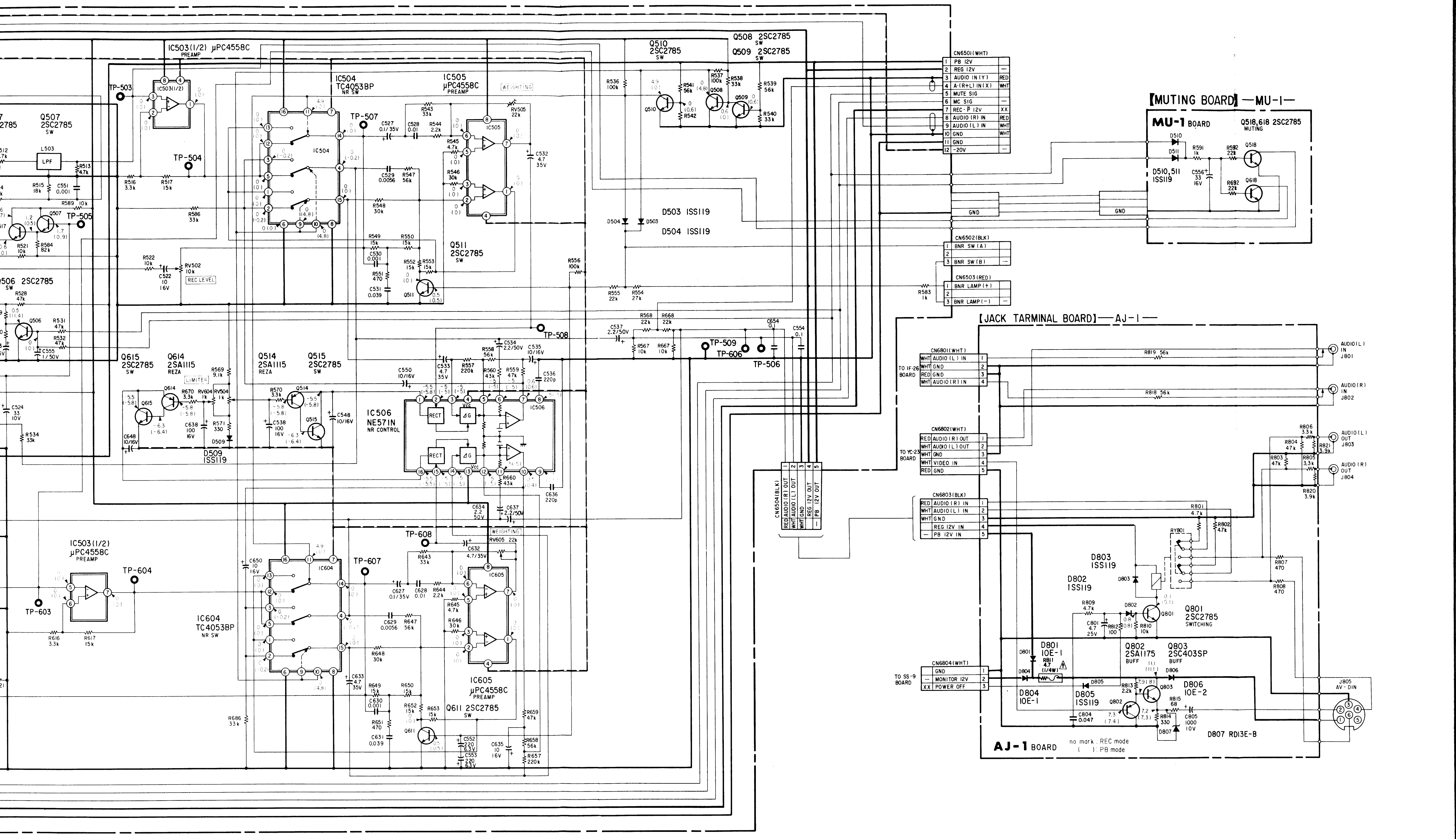
When indicating parts by reference number, please include the board name.

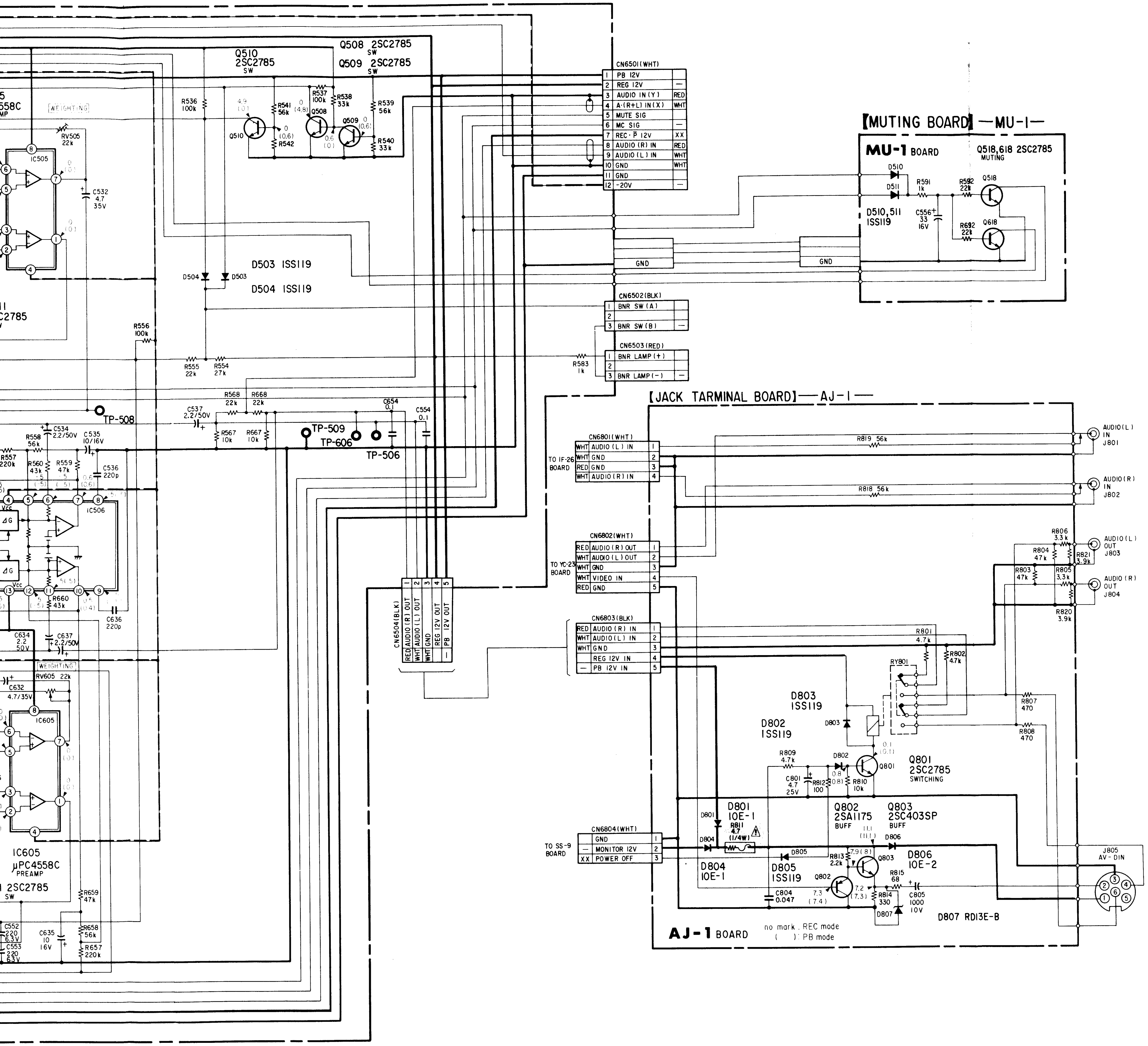
AD-7 (AUDIO RECORD/PLAYBACK AMP, BNR CONTROL), AJ-1 (AUDIO SW), MU-1 (MUTING) BOARDS SCHEMATIC DIAGRAM

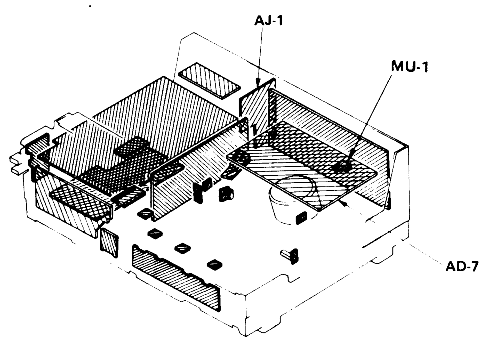
– Ref. No. AD-7 BOARD : 6000 series, AJ-1 BOARD : 6800 series , MU-1 BOARD : 3000 series –


【AUDIO REC/PB BOARD】—AD-7—
Q504 2SA1115 REZA
Q503 2SB734 REG
Q502 2SC2785 SW
R574 180(1/4W)
R576 470(1/4W)
D506 RD7.5E-B3
D507 RD7.5E-B3
IC502 BA5102 REC/PB AMP
Q517 2SC2785 SW
Q507 2SC2785 SW
IC503(1/2) μPC4558C PREAMP
IC504 TC4053BP NR SW
IC505 μPC4558C PREAMP
WEIGHTING
Q510 2SC
TP-501
TP-502
TP-503
TP-504
TP-505
TP-507
TP-508
TP-601
TP-602
TP-603
TP-604
TP-607
TP-608
AUDIO HEAD (L)
AUDIO HEAD (R)
CN6505(WHT)
RED AUDIO HEAD CH1,L(X) 1
WHT AUDIO HEAD CH1,L(Y) 2
RED AUDIO HEAD GND 3
RED AUDIO HEAD CH2,R(X) 4
WHT AUDIO HEAD CH2,R(Y) 5
WHT AUDIO HEAD GND 6
RY501
IC501(1/2) NJM4562D-D HEAD AMP
PB EQ
PB LEVEL
REC LEVEL
LPF
L503
L504 22mH
L505 18mH
D501 1SS119
Q501 2SC2785 SW
D605 1SS119
D505 1SS119
Q506 2SC2785 SW
Q615 2SC2785 SW
Q614 2SA1115 REZA
LIMITER
Q514 2SA1115 REZA
Q515 2SC2785 SW
Q511 2SC2785 SW
IC506 NE571N NR CONTROL
RECT
ΔG
D509 1SS119
D504
D503
AUDIO ERASE HEAD (R)
AUDIO ERASE HEAD (L)
FULL ERASE HEAD
CN6506(WHT)
WHT A-ERASE HEAD(Y) 3
2
WHT A-ERASE HEAD(X) 1
BIAS
CV501
Q516 2SC2673 BIAS OSC
L501
L502 470μH
D608 1SS119
Q613 2SC2785 SW
D508 1SS119
Q513 2SC2785 SW
IC602 BA5102 REC/PB AMP
IC501(1/2) NJM4562D-D HEAD AMP
IC503(1/2) μPC4558C PREAMP
IC604 TC4053BP NR SW
IC605 μPC4558C PREAMP
Q611 2SC2785 SW
Q606 2SC2785 SW
LV604 22mH
L603
L605 18mH
RV601
RV602
RV605 22k
AD-7 BOARD
no mark : REC mode
( ) : PB mode

GRAM


IC503(1/2) μPC4558C PREAMP
IC504 TC4053BP NR SW
IC505 μPC4558C PREAMP
WEIGHTING
Q510 2SC2785 SW
Q508 2SC2785 SW
Q509 2SC2785 SW
Q507 2SC2785 SW
Q506 2SC2785 SW
Q511 2SC2785 SW
LPF
TP-503
TP-504
TP-505
TP-507
TP-508
TP-509
TP-606
TP-506
TP-603
TP-604
TP-607
TP-608
REC LEVEL
LIMITER
D503 ISS119
D504 ISS119
D509 ISS119
Q615 2SC2785 SW
Q614 2SA1115 REZA
Q514 2SA1115 REZA
Q515 2SC2785 SW
IC506 NE571N NR CONTROL
RECT
ΔG
IC503(1/2) μPC4558C PREAMP
IC604 TC4053BP NR SW
IC605 μPC4558C PREAMP
Q611 2SC2785 SW
CN6501(WHT)
1 PB 12V
2 REG 12V
3 AUDIO IN (Y) RED
4 A·(R+L) IN (X) WHT
5 MUTE SIG
6 MC SIG
7 REC·P 12V XX
8 AUDIO (R) IN RED
9 AUDIO (L) IN WHT
10 GND WHT
11 GND
12 -20V
CN6502(BLK)
1 BNR SW (A)
2
3 BNR SW (B)
CN6503(RED)
1 BNR LAMP (+)
2
3 BNR LAMP (-)
CN6504(BLK)
1 RED AUDIO (R) OUT
2 WHT AUDIO (L) OUT
3 WHT GND
4 REG 12V OUT
5 PB 12V OUT
【MUTING BOARD】—MU-1—
MU-1 BOARD
Q518,618 2SC2785 MUTING
D510,511 ISS119
GND
【JACK TARMINAL BOARD】—AJ-1—
TO IF-26 BOARD
CN6801(WHT)
1 WHT AUDIO (L) IN
2 WHT GND
3 RED GND
4 WHT AUDIO (R) IN
TO YC-23 BOARD
CN6802(WHT)
1 RED AUDIO (R) OUT
2 WHT AUDIO (L) OUT
3 WHT GND
4 WHT VIDEO IN
5 RED GND
CN6803(BLK)
1 RED AUDIO (R) IN
2 WHT AUDIO (L) IN
3 WHT GND
4 RED REG 12V IN
5 — PB 12V IN
TO SS-9 BOARD
CN6804(WHT)
1 GND
2 — MONITOR 12V
3 XX POWER OFF
AUDIO (L) IN J801
AUDIO (R) IN J802
AUDIO (L) OUT J803
AUDIO (R) OUT J804
J805 AV-DIN
RY801
D803 ISS119
D802 ISS119
Q801 2SC2785 SWITCHING
D801 10E-1
Q802 2SA1175 BUFF
Q803 2SC403SP BUFF
D804 10E-1
D805 ISS119
D806 10E-2
D807 RD13E-B
AJ-1 BOARD
no mark : REC mode
( ) : PB mode


Q510 2SC2785 SW
Q508 2SC2785 SW
Q509 2SC2785 SW
CN6501(WHT)
1 PB 12V
2 REG 12V
3 AUDIO IN(Y) RED
4 A·(R+L) IN(X) WHT
5 MUTE SIG
6 MC SIG
7 REC·P 12V XX
8 AUDIO (R) IN RED
9 AUDIO (L) IN WHT
10 GND WHT
11 GND
12 -20V
WEIGHTING
RV505 22k
IC505
C532 4.7 35V
R536 100k
R541 56k
R542
R537 100k
R538 33k
R539 56k
R540 33k
D503 ISS119
D504 ISS119
R556 100k
R555 22k
R554 27k
R583 1k
CN6502(BLK)
1 BNR SW(A)
2
3 BNR SW(B)
CN6503(RED)
1 BNR LAMP(+)
2
3 BNR LAMP(-)
GND
[MUTING BOARD] —MU-1—
MU-1 BOARD
Q518,618 2SC2785 MUTING
D510
D511
D510,511 ISS119
R591 1k
R592 22k
R692 22k
C556 33 16V
Q518
Q618
TP-508
TP-509
TP-606
TP-506
R568 22k
R668 22k
C537 2.2/50V
R567 10k
R667 10k
C654 0.1
C554 0.1
C534 2.2/50V
R558 56k
C535 10/16V
R557 220k
R560 43k
R559 47k
C536 220p
IC506
R660 43k
C636 220p
C634 2.2 50V
C637 2.2/50V
RV605 22k
C632 4.7/35V
IC605
IC605 μPC4558C PREAMP
2SC2785 SW
R659 47k
C552 220 6.3V
C553 220 6.3V
C635 10 16V
R658 56k
R657 220k
CN6504(BLK)
1 RED AUDIO (R) OUT
2 WHT AUDIO (L) OUT
3 WHT GND
4 REG 12V OUT
5 PB 12V OUT
[JACK TARMINAL BOARD]—AJ-1—
CN6801(WHT)
TO IF-26 BOARD
WHT AUDIO (L) IN 1
WHT GND 2
RED GND 3
WHT AUDIO (R) IN 4
R819 56k
R818 56k
AUDIO (L) IN J801
AUDIO (R) IN J802
CN6802(WHT)
TO YC-23 BOARD
RED AUDIO (R) OUT 1
WHT AUDIO (L) OUT 2
WHT GND 3
WHT VIDEO IN 4
RED GND 5
R806 3.3k
R804 47k
R821 3.9k
R803 47k
R805 3.3k
R820 3.9k
AUDIO (L) OUT J803
AUDIO (R) OUT J804
CN6803(BLK)
RED AUDIO (R) IN 1
WHT AUDIO (L) IN 2
WHT GND 3
REG 12V IN 4
— PB 12V IN 5
R801 4.7k
R802 4.7k
RY801
R807 470
R808 470
D803 ISS119
D802 ISS119
R809 4.7k
C801 4.7 25V
R812 100
R810 10k
Q801 2SC2785 SWITCHING
D801 10E-1
R811 4.7 (1/4W)
Q802 2SA1175 BUFF
Q803 2SC403SP BUFF
CN6804(WHT)
TO SS-9 BOARD
1 GND
2 — MONITOR 12V
3 XX POWER OFF
D804 10E-1
D805 ISS119
R813 2.2k
R815 68
R814 330
C804 0.047
C805 1000 10V
D806 10E-2
D807
D807 RD13E-B
J805 AV-DIN
AJ-1 BOARD
no mark : REC mode
( ) : PB mode



Note:

- All resistors are in ohms, ⅛W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

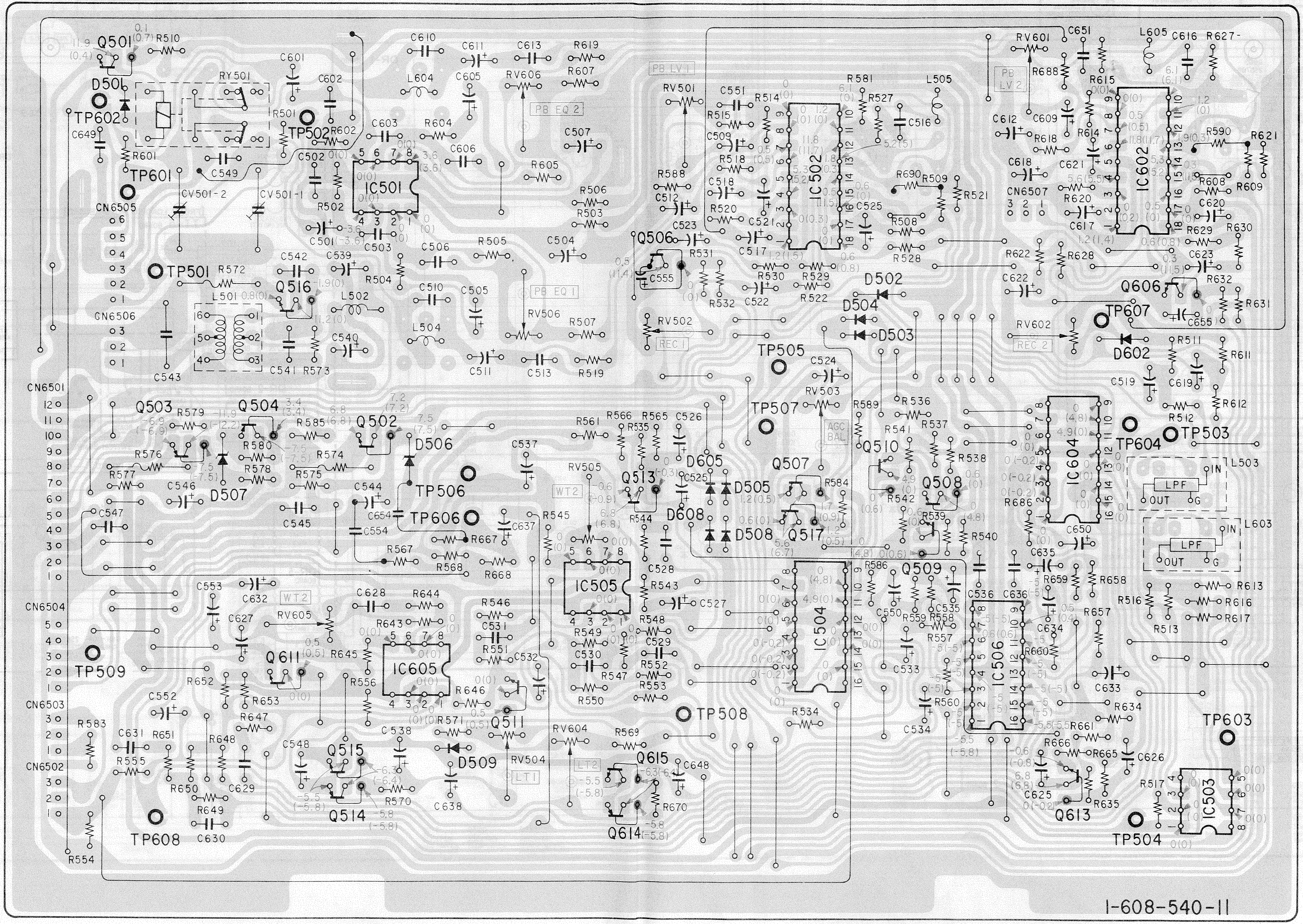
When indicating parts by reference number, please include the board name.

AD-7 (AUDIO RECORD/PLAYBACK AMP, BNR CONTROL), AJ-1 (AUDIO SW), MU-1 (MUTING) PRINTED WIRING BOARDS

– Ref. No. AD-7 BOARD : 6000 series, AJ-1 BOARD : 6800 series, MU-1 BOARD : 3000 series –

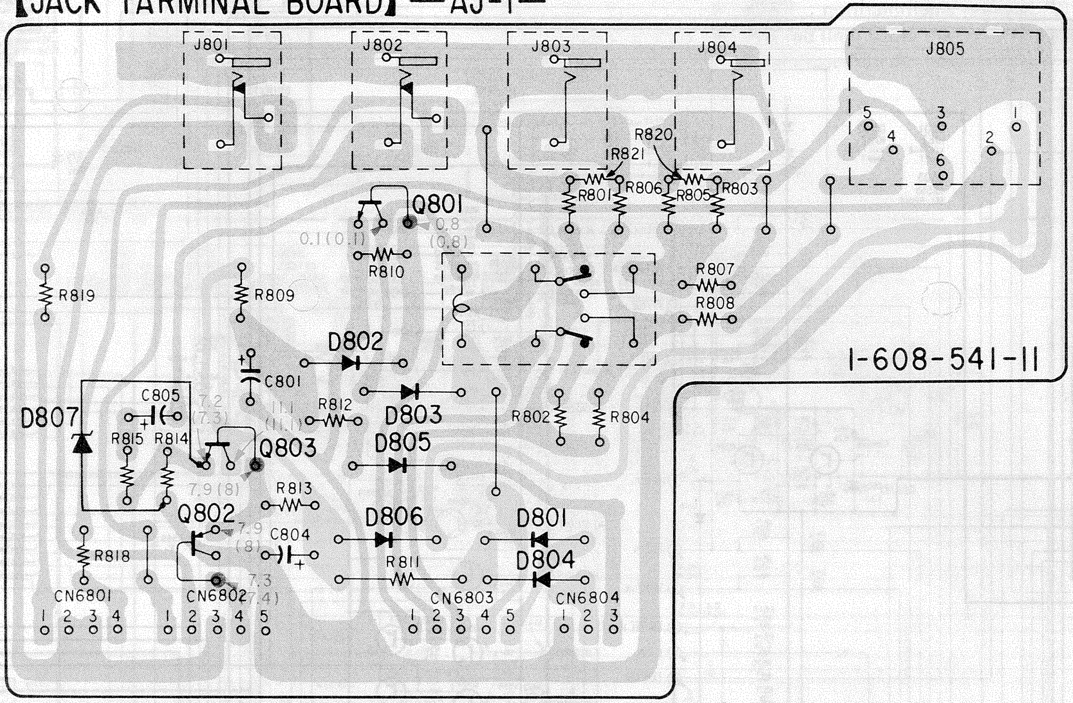
IC,Q	501 503 504 611 516 515 514 IC501 502 IC605 511 IC505 506 513 614 615 507 517 IC502 IC504 510 508 509 IC506 IC604 613 IC602 606 IC503
D	501 507 509 608 605 505 508 502 504 503 RV601 RV602 602
ADJ (TP,RV)	TP602 TP509 TP601 TP608 TP501 TP502 RV605 TP506 TP606 RV606 RV506 RV504 RV505 RV604 RV501 RV502 TP508 TP505 TP507 RV503 TP607 TP604 TP503 TP504 TP603

【AUDIO REC/PB BOARD】—AD-7—



Q501
D501
TP602
RY501
TP601
TP502
IC501
CN6505
CV501-2
CV501-1
TP501
L501
Q516
CN6506
CN6501
Q503
Q504
Q502
D506
D507
TP506
TP606
CN6504
TP509
Q611
IC605
RV605
CN6503
CN6502
Q515
Q514
TP608
D509
Q511
RV504
RV604
IC505
RV505
Q513
D605
D505
D608
D508
Q506
RV501
RV502
PB LV1
PB EQ 2
PB EQ 1
REC 1
WT2
LT2
LT1
Q615
Q614
IC502
IC504
Q507
Q517
Q509
Q510
Q508
TP505
TP507
RV503
AGC BAL
D502
D504
D503
TP508
IC506
RV601
PB LV 2
IC602
CN6507
Q606
TP607
RV602
REC 2
D602
IC604
TP604
TP503
L503
L603
LPF
Q613
TP603
TP504
IC503
1-608-540-11

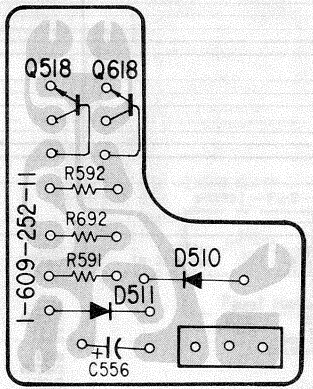
【JACK TARMINAL BOARD】—AJ-1—


J801
J802
J803
J804
J805
5
3
1
4
2
6
R820
R821
R801
R806
R805
R803
Q801
0.8
(0.8)
0.1(0.1)
R810
R807
R808
R819
R809
D802
C801
1-608-541-11
D807
C805
7.2
(7.3)
R815
R814
Q803
R812
D803
D805
R802
R804
7.9(8)
R813
Q802
7.9
(8)
C804
D806
D801
D804
R818
R811
7.3
(7.4)
CN6801
1 2 3 4
CN6802
1 2 3 4 5
CN6803
1 2 3 4 5
CN6804
1 2 3

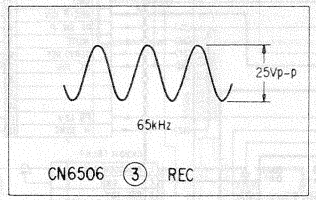
IC,Q	D	ADJ (TP,RV)
801		
	802	
	803	
	805	
	807	
802	806,801	
	804	

【MUTING BOARD】

—MU-1—


Q518
Q618
R592
R692
R591
D510
D511
C556
1-609-252-11

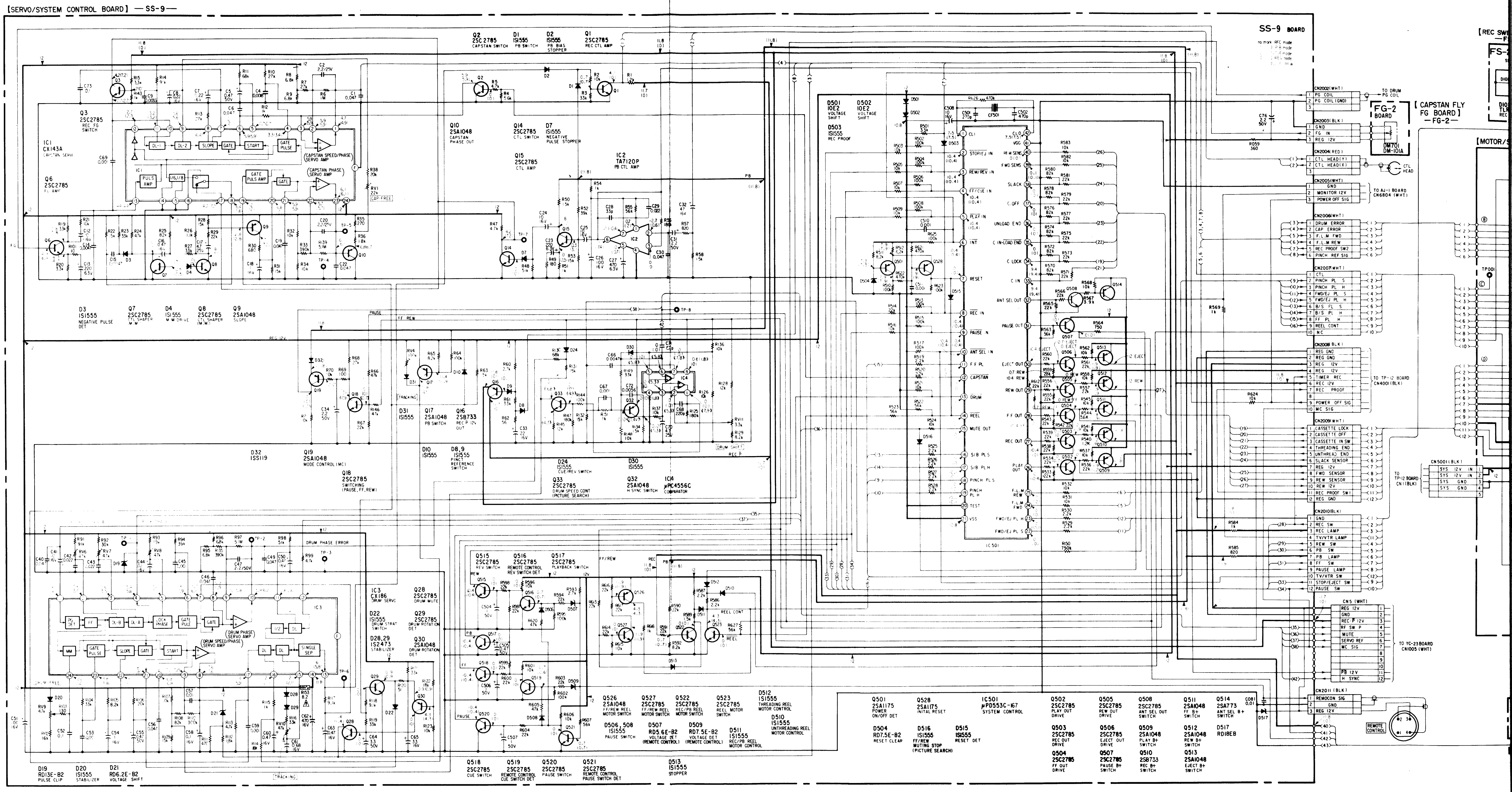
AD-7 BOARD



When indicating parts by reference number, please include the board name.

SS-9 (SERVO & SYSTEM CONTROL), FG-2 (CAPSTAN FLY FG), DR-1 (MOTOR & SOLENOID DRIVE), DR-2 • DR-3 • DR-4 (SWITCH), DR-5 • DR-6 • DR-7 (SOLENOID), DR-8 • DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 • FS-23 (CASSETTE CONTROL S
FL-2 (NOISE FILTER), TT-2 • TT-3 • TT-4 • TT-5 (CASSETTE CONPARTMENT), SL-1 (SLACK SENSOR), CP-6 (CAMERA PLAY) BOARDS SCHEMATIC DIAGRAM

– Ref. No. SS-9 BOARD : 2000 series, FG-2 BOARD : 7700 series, DR-1 – DR-10 BOARDS : 5000 series, FS-22, FS-23 BOARDS : 6000 series, FL-2 BOARD : 7000 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –


[SERVO/SYSTEM CONTROL BOARD] — SS-9 —
SS-9 BOARD
Q2 2SC2785 CAPSTAN SWITCH
D1 1S1555 PB SWITCH
D2 1S1555 PB BIAS STOPPER
Q1 2SC2785 REC CTL AMP
Q3 2SC2785 REC FG SWITCH
IC1 CX143A CAPSTAN SERVO
Q6 2SC2785 FG AMP
(CAPSTAN SPEED/PHASE) SERVO AMP
(CAPSTAN PHASE) SERVO AMP
Q10 2SA1048 CAPSTAN PHASE OUT
Q14 2SC2785 CTL SWITCH
D7 1S1555 NEGATIVE PULSE STOPPER
Q15 2SC2785 CTL AMP
IC2 TA7120P PB CTL AMP
D3 1S1555 NEGATIVE PULSE DET
Q7 2SC2785 CTL SHAPER M.M
D4 1S1555 M.M DRIVE
Q8 2SC2785 CTL SHAPER (M.M)
Q9 2SA1048 SLOPE
D32 1SS119
Q19 2SA1048 MODE CONTROL (MC)
Q18 2SC2785 SWITCHING (PAUSE, FF, REW)
D31 1S1555
Q17 2SA1048 PB SWITCH
Q16 2SB733 REC P 12V OUT
D10 1S1555
D8, 9 1S1555 PINCT REFERENCE SWITCH
D24 1S1555 CUE/REV SWITCH
Q33 2SC2785 DRUM SPEED CONT (PICTURE SEARCH)
D30 1S1555
Q32 2SA1048 H SYNC SWITCH
IC4 μPC4556C COMPARATOR
DRUM PHASE ERROR
IC3 CX186 DRUM SERVO
(DRUM PHASE) SERVO AMP
(DRUM SPEED/PHASE) SERVO AMP
Q28 2SC2785 DRUM MUTE
D22 1S1555 DRUM START SWITCH
Q29 2SC2785 DRUM ROTATION DET
D28, 29 1S2473 STABILIZER
Q30 2SA1048 DRUM ROTATION DET
D19 RD13E-B2 PULSE CLIP
D20 1S1555 STABILIZER
D21 RD6.2E-B2 VOLTAGE SHIFT
TRACKING
Q515 2SC2785 REV SWITCH
Q516 2SC2785 REMOTE CONTROL REV SWITCH DET
Q517 2SC2785 PLAYBACK SWITCH
Q518 2SC2785 CUE SWITCH
Q519 2SC2785 REMOTE CONTROL CUE SWITCH DET
Q520 2SC2785 PAUSE SWITCH
Q521 2SC2785 REMOTE CONTROL PAUSE SWITCH DET
Q526 2SA1048 FF/REW REEL MOTOR SWITCH
Q527 2SC2785 FF/REW REEL MOTOR SWITCH
Q522 2SC2785 REC/PB REEL MOTOR SWITCH
Q523 2SC2785 REEL MOTOR SWITCH
D512 1S1555 THREADING REEL MOTOR CONTROL
D506, 508 1S1555 PAUSE SWITCH
D507 RD5.6E-B2 VOLTAGE DET (REMOTE CONTROL)
D509 RD7.5E-B2 VOLTAGE DET (REMOTE CONTROL)
D511 1S1555 REC/PB REEL MOTOR CONTROL
D510 1S1555 UNTHREADING REEL MOTOR CONTROL
D513 1S1555 STOPPER
D501 10E2 VOLTAGE SHIFT
D502 10E2 VOLTAGE SHIFT
D503 1S1555 REC PROOF
IC501
Q501 2SA1175 POWER ON/OFF DET
Q528 2SA1175 INITAL RESET
IC501 μPD553C-167 SYSTEM CONTROL
Q502 2SC2785 PLAY OUT DRIVE
Q505 2SC2785 REW OUT DRIVE
Q508 2SC2785 ANT SEL OUT SWITCH
Q511 2SA1048 FF B+ SWITCH
Q514 2SA773 ANT SEL B+ SWITCH
D504 RD7.5E-B2 RESET CLEAR
D516 1S1555 FF/REW MUTING STOP (PICTURE SEARCH)
D515 1S1555 RESET DET
Q503 2SC2785 REC OUT DRIVE
Q506 2SC2785 EJECT OUT DRIVE
Q509 2SA1048 PLAY B+ SWITCH
Q512 2SA1048 REW B+ SWITCH
D517 RD18EB
Q504 2SC2785 FF OUT DRIVE
Q507 2SC2785 PAUSE B+ SWITCH
Q510 2SB733 REC B+ SWITCH
Q513 2SA1048 EJECT B+ SWITCH
CN2002 (WHT) PG COIL, PG COIL (GND)
TO DRUM PG COIL
CN2003 (BLK) GND, FG IN, REG 12V
FG-2 BOARD
[CAPSTAN FLY FG BOARD] — FG-2 —
DM701 DM-101A
CN2004 (RED) CTL HEAD (Y), CTL HEAD (X)
CTL HEAD
CN2005 (WHT) GND, MONITOR 12V, POWER OFF SIG
TO AJ-1 BOARD CN6804 (WHT)
CN2006 (WHT) DRUM ERROR, CAP. ERROR, F.L.M FWD, F.L.M REW, REC PROOF SW2, PINCH REF SIG
CN2007 (WHT) CTL, PINCH PL S, PINCH PL H, FWD/EJ PL S, FWD/EJ PL H, B/S PL S, B/S PL H, FF PL H, REEL CONT, NC
CN2008 (BLK) REG GND, REG GND, REG 12V, REG 12V, TIMER REC, REC P, REC PROOF, POWER OFF SIG, MC SIG
TO TP-12 BOARD CN4001 (BLK)
CN2009 (WHT) CASSETTE LOCK, CASSETTE OFF, CASSETTE IN SW, THREADING END, UNTHREAD END, SLACK SENSOR, REG 12V, FWD SENSOR, REW SENSOR, REW 12V, REC PROOF SW1, REG GND
CN5001 (BLK) SYS 12V IN, SYS 12V IN, SYS GND, SYS GND
TO TP-12 BOARD CN1 (BLK)
CN2010 (BLK) GND, REC SW, REC LAMP, REW SW, PB SW, PB LAMP, FF SW, PAUSE LAMP, TV/VTR SW, STOP/EJECT SW, PAUSE SW
CN5 (WHT) REG 12V, GND, REC P 12V, RF SW P, MUTE, SERVO REF, MC SIG, PB 12V, H SYNC
TO YC-23 BOARD CN1005 (WHT)
CN2011 (BLK) REMOCON SIG, GND, REG 12V
REMOTE CONTROL
[REC SW
FS-2
[MOTOR/S

I), DR-5 • DR-6 • DR-7 (SOLENOID), DR-8 • DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 • FS-23 (CASSETTE CONTROL SWITCH),

S SCHEMATIC DIAGRAM

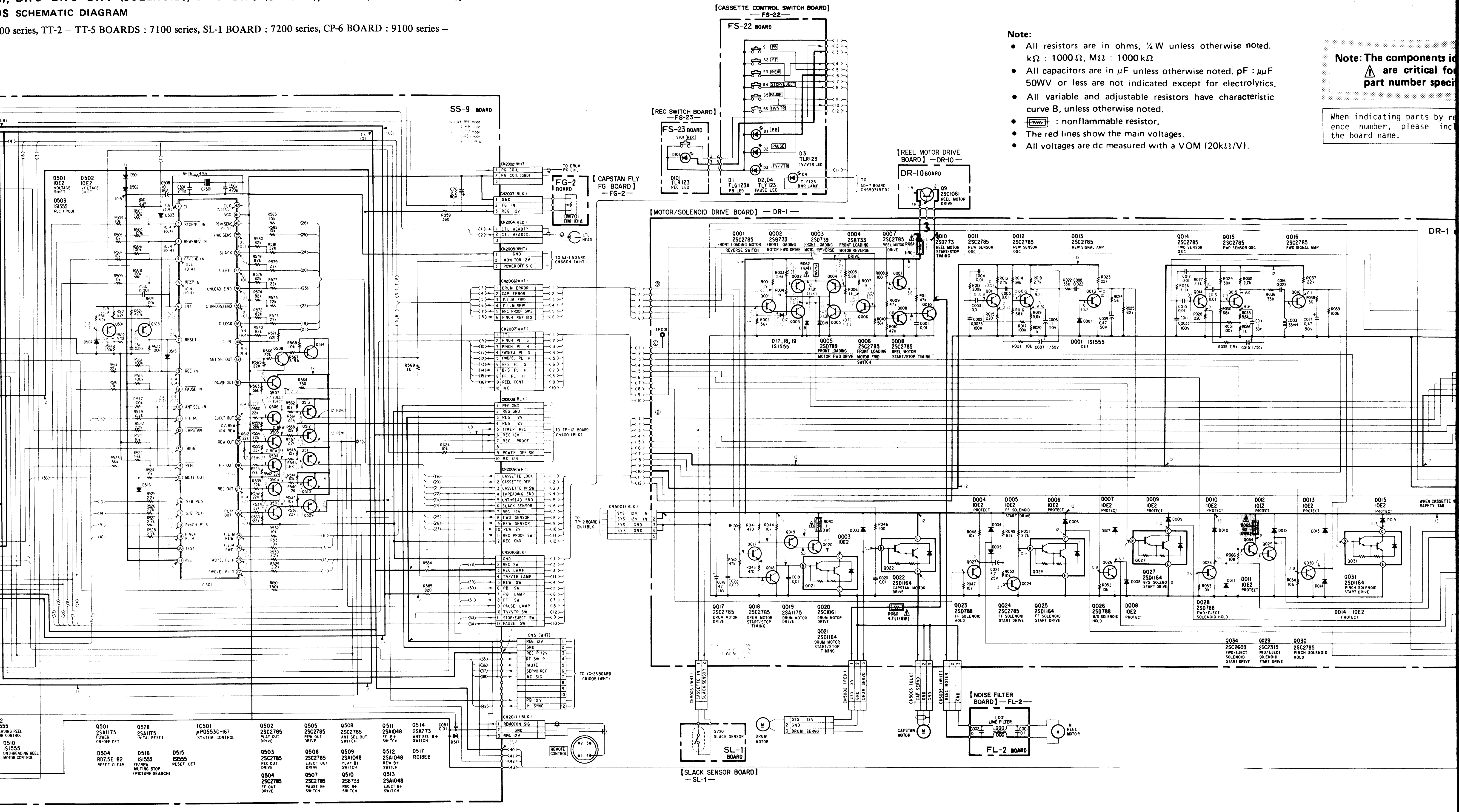
00 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –

Note:

- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

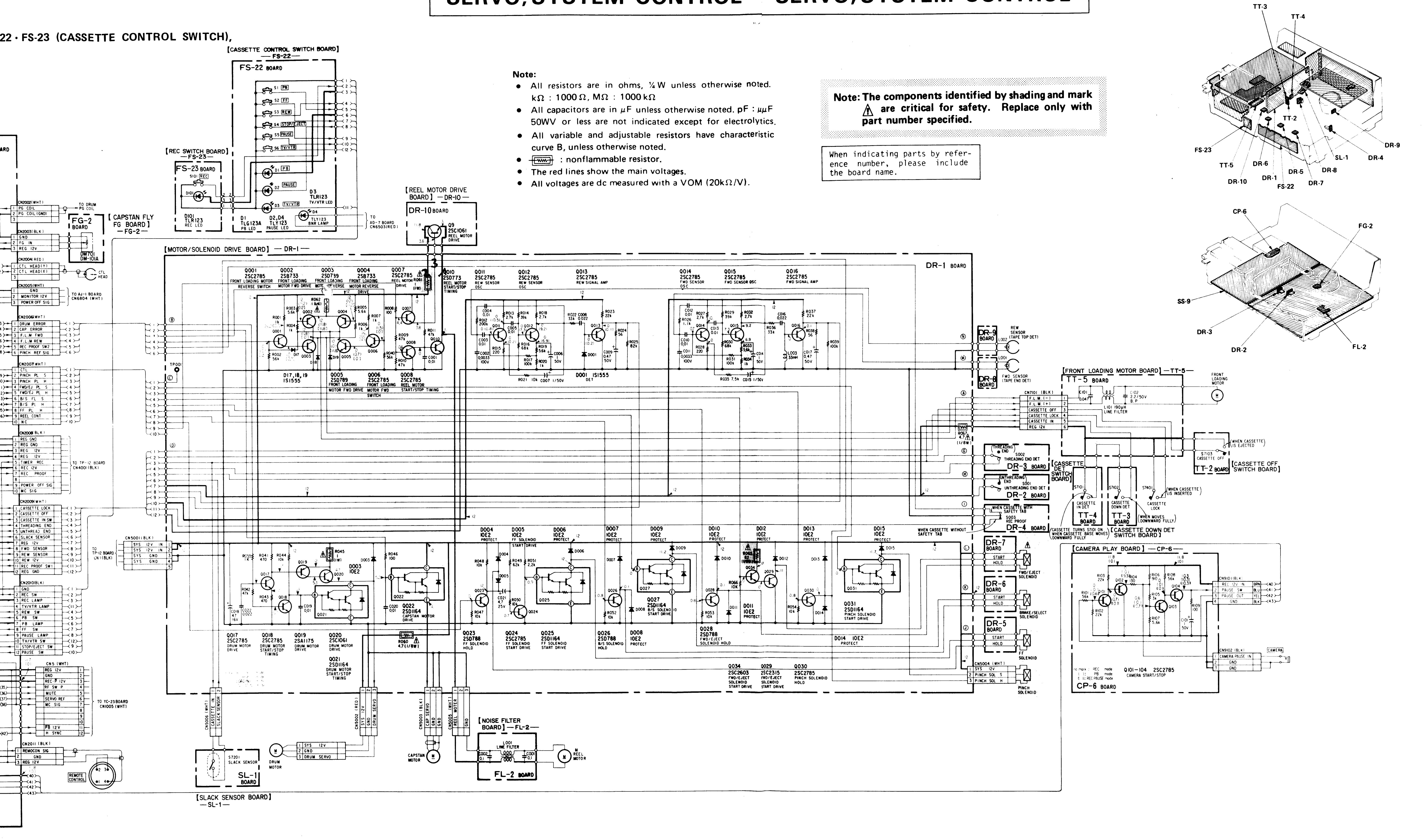
Note: The components i
⚠ are critical fo
part number speci

When indicating parts by re
ence number, please inc
the board name.



[CASSETTE CONTROL SWITCH BOARD] —FS-22—
FS-22 BOARD
S1 PB
S2 FF
S3 REW
S4 STOP/EJECT
S5 PAUSE
S6 TV/VTR
D1 TLG123A PB LED
D2, D4 TLY123 PAUSE LED
D3 TLR123 TV/VTR LED
TLY123 BNR LAMP
[REC SWITCH BOARD] —FS-23—
FS-23 BOARD
S101 REC
D101 TLR123 REC LED
TO AD-7 BOARD CN6503 (RED)
SS-9 BOARD
TO DRUM PG COIL
FG-2 BOARD
[CAPSTAN FLY FG BOARD] —FG-2—
DM701 DM-101A
CTL HEAD
TO AJ-1 BOARD CN6804 (WHT)
TO TP-12 BOARD CN4001 (BLK)
TO TP-12 BOARD CN1 (BLK)
TO YC-23 BOARD CN1005 (WHT)
REMOTE CONTROL
IC501 μPD553C-167 SYSTEM CONTROL
[REEL MOTOR DRIVE BOARD] —DR-10—
DR-10 BOARD
Q9 2SC1061 REEL MOTOR DRIVE
[MOTOR/SOLENOID DRIVE BOARD] —DR-1—
DR-1
Q001 2SC2785 FRONT LOADING MOTOR REVERSE SWITCH
Q002 2SB733 FRONT LOADING MOTOR FWD DRIVE
Q003 2SD739 FRONT LOADING MOTOR REVERSE DRIVE
Q004 2SB733 FRONT LOADING MOTOR REVERSE
Q007 2SC2785 REEL MOTOR DRIVE
Q010 2SD773 REEL MOTOR START/STOP TIMING
Q011 2SC2785 REW SENSOR OSC
Q012 2SC2785 REW SENSOR OSC
Q013 2SC2785 REW SIGNAL AMP
Q014 2SC2785 FWD SENSOR OSC
Q015 2SC2785 FWD SENSOR OSC
Q016 2SC2785 FWD SIGNAL AMP
Q005 2SD789 FRONT LOADING MOTOR FWD DRIVE
Q006 2SC2785 FRONT LOADING MOTOR FWD SWITCH
Q008 2SC2785 REEL MOTOR START/STOP TIMING
D17, 18, 19 1S1555
D001 1S1555 DET
Q017 2SC2785 DRUM MOTOR DRIVE
Q018 2SC2785 DRUM MOTOR START/STOP TIMING
Q019 2SA1175 DRUM MOTOR DRIVE
Q020 2SC1061 DRUM MOTOR DRIVE
Q021 2SD1164 DRUM MOTOR START/STOP TIMING
Q022 2SD1164 CAPSTAN MOTOR DRIVE
D003 10E2
Q023 2SD788 FF SOLENOID HOLD
Q024 2SC2785 FF SOLENOID START DRIVE
Q025 2SD1164 FF SOLENOID START DRIVE
Q026 2SD788 B/S SOLENOID HOLD
D008 10E2 PROTECT
Q027 2SD1164 B/S SOLENOID START DRIVE
Q028 2SD788 FWD/EJECT SOLENOID HOLD
D011 10E2 PROTECT
Q031 2SD1164 PINCH SOLENOID START DRIVE
D014 10E2 PROTECT
Q034 2SC2603 FWD/EJECT SOLENOID START DRIVE
Q029 2SC2315 FWD/EJECT SOLENOID START DRIVE
Q030 2SC2785 PINCH SOLENOID HOLD
WHEN CASSETTE W/ SAFETY TAB
[NOISE FILTER BOARD] —FL-2—
L001 LINE FILTER
FL-2 BOARD
REEL MOTOR
CAPSTAN MOTOR
DRUM MOTOR
S7201 SLACK SENSOR
SL-1 BOARD
[SLACK SENSOR BOARD] —SL-1—
Q501 2SA1175 POWER ON/OFF DET
Q528 2SA1175 INITIAL RESET
Q502 2SC2785 PLAY OUT DRIVE
Q505 2SC2785 REW OUT DRIVE
Q508 2SC2785 ANT SEL OUT SWITCH
Q511 2SA1048 FF B+ SWITCH
Q514 2SA733 ANT SEL B+ SWITCH
D504 RD7.5E-B2 RESET CLEAR
D516 1S1555 FF/REW MUTING STOP (PICTURE SEARCH)
D515 1S1555 RESET DET
Q503 2SC2785 REC OUT DRIVE
Q506 2SC2785 EJECT OUT DRIVE
Q509 2SA1048 PLAY B+ SWITCH
Q512 2SA1048 REW B+ SWITCH
D517 RD18EB
Q504 2SC2785 FF OUT DRIVE
Q507 2SC2785 PAUSE B+ SWITCH
Q510 2SB733 REC B+ SWITCH
Q513 2SA1048 EJECT B+ SWITCH
D510 1S1555 UNTHREADING REEL MOTOR CONTROL

22 · FS-23 (CASSETTE CONTROL SWITCH),


[CASSETTE CONTROL SWITCH BOARD] —FS-22—
FS-22 BOARD
S1 PB
S2 FF
S3 REW
S4 STOP/EJECT
S5 PAUSE
S6 TV/VTR
D1 PB
D2 PAUSE
D3 TV/VTR
D4
D3 TLR123 TV/VTR LED
D1 TLG123A PB LED
D2,D4 TLY123 PAUSE LED
TLY123 BNR LAMP
TO AD-7 BOARD CN6503(RED)
[REC SWITCH BOARD] —FS-23—
FS-23 BOARD
S101 REC
D101 TLR123 REC LED
[CAPSTAN FLY FG BOARD] —FG-2—
FG-2 BOARD
DM701 DM-101A
CN2002(WHT) PG COIL, PG COIL (GND)
TO DRUM PG COIL
CN2003(BLK) GND, FG IN, REG 12V
CN2004(RED) CTL HEAD(Y), CTL HEAD(X)
CTL HEAD
CN2005(WHT) GND, MONITOR 12V, POWER OFF SIG
TO AJ-1 BOARD CN6804 (WHT)
CN2006(WHT) DRUM ERROR, CAP ERROR, F.L.M FWD, F.L.M REW, REC PROOF SW2, PINCH REF SIG
CN2007(WHT) CTL, PINCH PL S, PINCH PL H, FWD/EJ PL S, FWD/EJ PL H, B/S PL S, B/S PL H, FF PL H, REEL CONT, NC
CN2008(BLK) REG GND, REG GND, REG 12V, REG 12V, TIMER REC, REC 12V, REC PROOF, POWER OFF SIG, MC SIG
TO TP-12 BOARD CN4001(BLK)
CN2009(WHT) CASSETTE LOCK, CASSETTE OFF, CASSETTE IN SW, THREADING END, UNTHREAD END, SLACK SENSOR, REG 12V, FWD SENSOR, REW SENSOR, REW 12V, REC PROOF SW1, REG GND
CN2010(BLK) GND, REC SW, REC LAMP, TV/VTR LAMP, REW SW, PB SW, PB LAMP, FF SW, PAUSE LAMP, TV/VTR SW, STOP/EJECT SW, PAUSE SW
CN5 (WHT) REG 12V, GND, REC·P 12V, RF SW P, MUTE, SERVO REF, MC SIG, PB 12V, H SYNC
TO YC-23 BOARD CN1005 (WHT)
CN2011 (BLK) REMOCON SIG, GND, REG 12V
REMOTE CONTROL
CN5001(BLK) SYS 12V IN, SYS 12V IN, SYS GND, SYS GND
TO TP-12 BOARD CN1(BLK)
TP001
[REEL MOTOR DRIVE BOARD] —DR-10—
DR-10 BOARD
Q9 2SC1061 REEL MOTOR DRIVE
[MOTOR/SOLENOID DRIVE BOARD] —DR-1—
DR-1 BOARD
Q001 2SC2785 FRONT LOADING MOTOR REVERSE SWITCH
Q002 2SB733 FRONT LOADING MOTOR FWD DRIVE
Q003 2SD739 FRONT LOADING MOTOR REVERSE
Q004 2SB733 FRONT LOADING MOTOR REVERSE DRIVE
Q007 2SC2785 REEL MOTOR DRIVE
R061 1 (1W)
Q010 2SD773 REEL MOTOR START/STOP TIMING
Q011 2SC2785 REW SENSOR OSC
Q012 2SC2785 REW SENSOR OSC
Q013 2SC2785 REW SIGNAL AMP
Q014 2SC2785 FWD SENSOR OSC
Q015 2SC2785 FWD SENSOR OSC
Q016 2SC2785 FWD SIGNAL AMP
D17,18,19 1S1555
Q005 2SD789 FRONT LOADING MOTOR FWD DRIVE
Q006 2SC2785 FRONT LOADING MOTOR FWD SWITCH
Q008 2SC2785 REEL MOTOR START/STOP TIMING
D001 1S1555 DET
R062 1 (1/4)
R067 4.7 (1/8W)
DR-9 BOARD
REW SENSOR (TAPE TOP DET)
L002
L001
DR-8 BOARD
FWD SENSOR (TAPE END DET)
[FRONT LOADING MOTOR BOARD] —TT-5—
TT-5 BOARD
CN7101 (BLK) F.L.M.(−), F.L.M.(+), CASSETTE OFF, CASSETTE LOCK, CASSETTE IN, REG 12V
C101 0.047
C102 2.2/50V B.P
L101 190μH LINE FILTER
FRONT LOADING MOTOR
THREADING END
S002 THREADING END DET
DR-3 BOARD
UNTHREADING END
S001 UNTHREADING END DET
DR-2 BOARD
WHEN CASSETTE WITH SAFETY TAB
S003 REC PROOF
DR-4 BOARD
WHEN CASSETTE WITHOUT SAFETY TAB
[CASSETTE DET SWITCH BOARD]
S7101 CASSETTE IN DET
TT-4 BOARD
S7102 CASSETTE DOWN DET
TT-3 BOARD
(WHEN MOVES DOWNWARD FULLY)
S7401 CASSETTE LOCK
(WHEN CASSETTE IS INSERTED)
(CASSETTE TURNS S7101 ON WHEN CASSETTE BASE MOVES DOWNWARD FULLY)
[CASSETTE DOWN DET SWITCH BOARD]
(WHEN CASSETTE IS EJECTED)
S7103 CASSETTE OFF
TT-2 BOARD
[CASSETTE OFF SWITCH BOARD]
DR-7 BOARD START HOLD
FWD/EJECT SOLENOID
DR-6 BOARD START HOLD
BRAKE/SELECT SOLENOID
DR-5 BOARD START HOLD
FF SOLENOID
CN5004 (WHT) SYS 12V, PINCH SOL S, PINCH SOL H
PINCH SOLENOID
[CAMERA PLAY BOARD] —CP-6—
CP-6 BOARD
CN9101(BLK) REC 12V IN, PAUSE SW, PAUSE OUT, GND
BRN, BLU, YEL, BLK
CN9102 (BLK) CAMERA PAUSE IN, GND, GND
CAMERA
no mark : REC mode
( ): PB mode
(( )): REC PAUSE mode
Q101–104 2SC2785 CAMERA START/STOP
D004 10E2 PROTECT
D005 10E2 FF SOLENOID START DRIVE
D006 10E2 PROTECT
D007 10E2 PROTECT
D009 10E2 PROTECT
D010 10E2 PROTECT
D012 10E2 PROTECT
D013 10E2 PROTECT
D015 10E2 PROTECT
D003 10E2
R045 1 (1W)
R060 4.7(1/8W)
R065 82
Q017 2SC2785 DRUM MOTOR DRIVE
Q018 2SC2785 DRUM MOTOR START/STOP TIMING
Q019 2SA1175 DRUM MOTOR DRIVE
Q020 2SC1061 DRUM MOTOR DRIVE
Q021 2SD1164 DRUM MOTOR START/STOP TIMING
Q022 2SD1164 CAPSTAN MOTOR DRIVE
Q023 2SD788 FF SOLENOID HOLD
Q024 2SC2785 FF SOLENOID START DRIVE
Q025 2SD1164 FF SOLENOID START DRIVE
Q026 2SD788 B/S SOLENOID HOLD
D008 10E2 PROTECT
Q027 2SD1164 B/S SOLENOID START DRIVE
Q028 2SD788 FWD/EJECT SOLENOID HOLD
D011 10E2 PROTECT
Q031 2SD1164 PINCH SOLENOID START DRIVE
D014 10E2 PROTECT
Q034 2SC2603 FWD/EJECT SOLENOID START DRIVE
Q029 2SC2315 FWD/EJECT SOLENOID START DRIVE
Q030 2SC2785 PINCH SOLENOID HOLD
CN5006 (WHT) CASSETTE IN, SLACK SENSOR
CN5002 (RED) SYS 12V, GND, DRUM SERVO
CN5003 (BLK) CAP SERVO, GND, GND
CN5005 (WHT) REEL MOTER, GND
S7201 SLACK SENSOR
SL-1 BOARD
[SLACK SENSOR BOARD] —SL-1—
DRUM MOTOR
SYS 12V, GND, DRUM SERVO
CAPSTAN MOTOR
[NOISE FILTER BOARD] —FL-2—
L001 LINE FILTER
C002 0.1
C001 0.1
FL-2 BOARD
REEL MOTOR
TT-3
TT-4
TT-2
FS-23
TT-5
DR-6
DR-10
DR-1
FS-22
DR-5
DR-8
DR-7
SL-1
DR-9
DR-4
CP-6
FG-2
SS-9
DR-3
DR-2
FL-2

Note:

- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SERVO, SYSTEM CONTROL SERVO, SYSTEM CONTROL

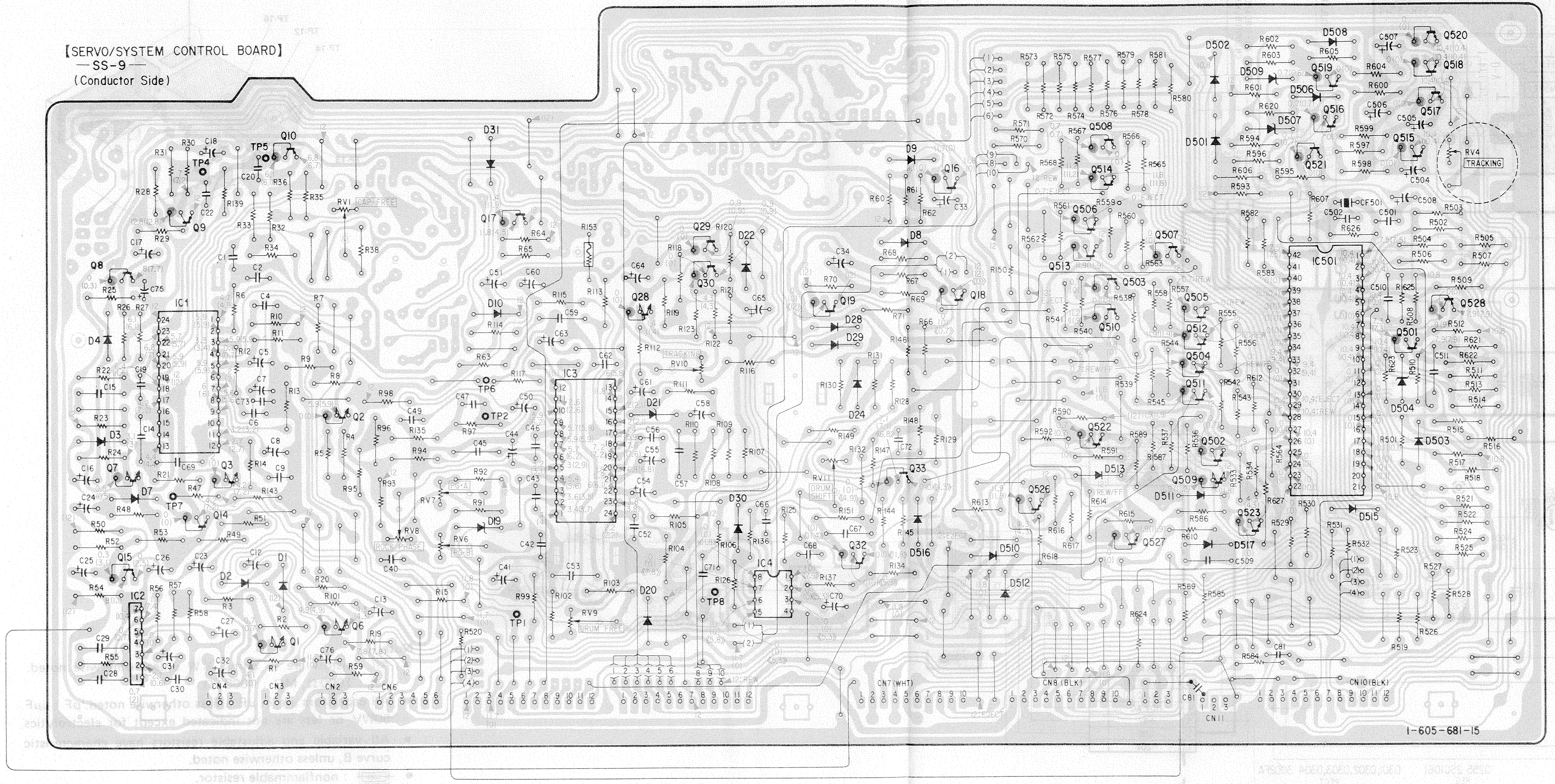
SS-9 (SERVO & SYSTEM CONTROL), FG-2 (CAPSTAN FLY FG), DR-1 (MOTOR & SOLENOID DRIVE), DR-2 · DR-3 · DR-4 (SWITCH), DR-5 · DR-6 · DR-7 (SOLENOID), DR-8 · DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 · FS-23 (CASSETTE CONTROL SWITC FL-2 (NOISE FILTER), TT-2 · TT-3 · TT-4 · TT-5 (CASSETTE CONPARTMENT), SL-1 (SLACK SENSOR), CP-6 (CAMERA PLAY) PRINTED WIRING BOARDS

– Ref. No. SS-9 BOARD : 2000 series, FG-2 BOARD : 7700 series, DR-1 – DR-10 BOARDS : 5000 series, FS-22, FS-23 BOARDS : 6000 series, FL-2 BOARD : 7000 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –

IC, Q	15 7 8 IC2 9 IC1 14 3 1 10 2 6 17 IC3 28 29 30 IC4 19 32 33 16 18 526 506, 503 513 510 522 527 507 505 512 504 511 502 509 523 519 521 516 IC501 520 518 515 517 528 101 102 103 104
D	3 4 7 2 1 19 31 10 20 21 30 22 28 29 24 8 9 516 510 512 513 511 502 501 509 507 2 506 508 515 504 503 1 101
ADJ (TP, RV)	TP7 TP4 TP5 RV1 RV8, RV7 RV6 TP6 TP2 TP1 RV9 RV10 TP8 RV11 RV4

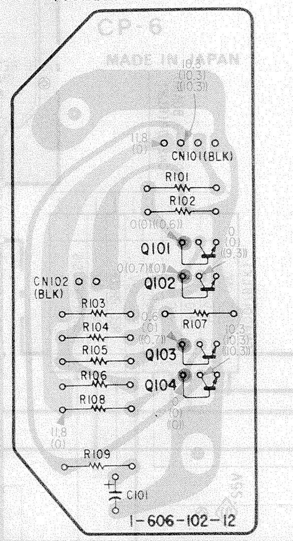
Q, IC	9
D	
ADJ, TP	

【SERVO/SYSTEM CONTROL BOARD】
— SS-9 —
(Conductor Side)

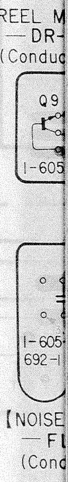


IC1
IC2
IC3
IC4
IC501
TP1
TP2
TP4
TP5
TP6
TP7
TP8
RV1
RV4
TRACKING
RV6
RV7
RV8
RV9
RV10
RV11
CN2
CN3
CN4
CN6
CN7 (WHT)
CN8 (BLK)
CN10 (BLK)
CN11
1-605-681-15

【CAMERA PLAY BOARD】
— CP-6 —
(Conductor Side)

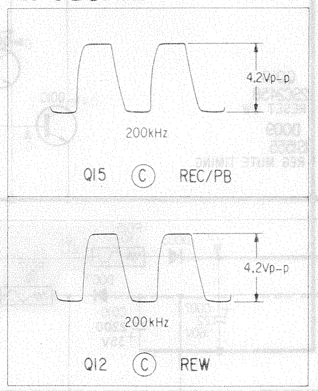


CP-6
MADE IN JAPAN
CN101 (BLK)
CN102 (BLK)
Q101
Q102
Q103
Q104
C101
1-606-102-12

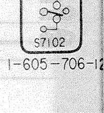


【REEL M
— DR-
(Condu
Q9
1-605
1-605
692-1
【NOISE
— FL
(Cond

DR-1 BOARD

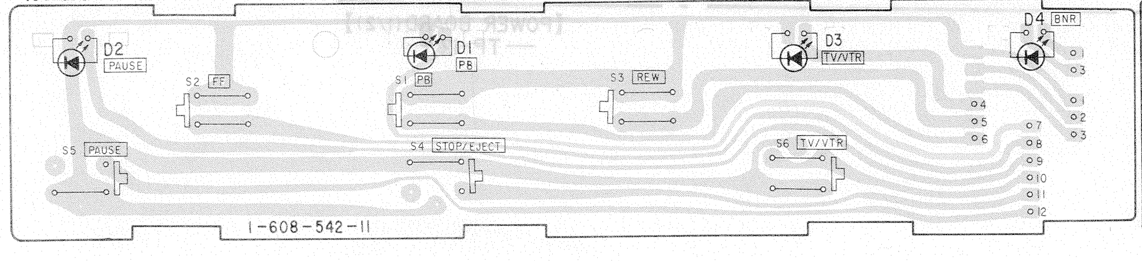


【CASSETTE DOWN SWITCH BOARD】
— TT-3 —
(Conductor Sid



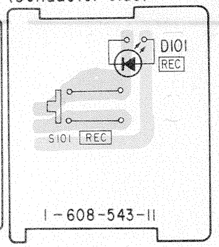
S7102
1-605-706-1

【CASSETTE CONTROL SWITCH BOARD】— FS-22 —
(Conductor side)



D2 PAUSE
D1 PB
D3 TV/VTR
D4 BNR
S2 FF
S1 PB
S3 REW
S5 PAUSE
S4 STOP/EJECT
S6 TV/VTR
1-608-542-11

【REC SWITCH BOARD】
— FS-23 —
(Conductor side)



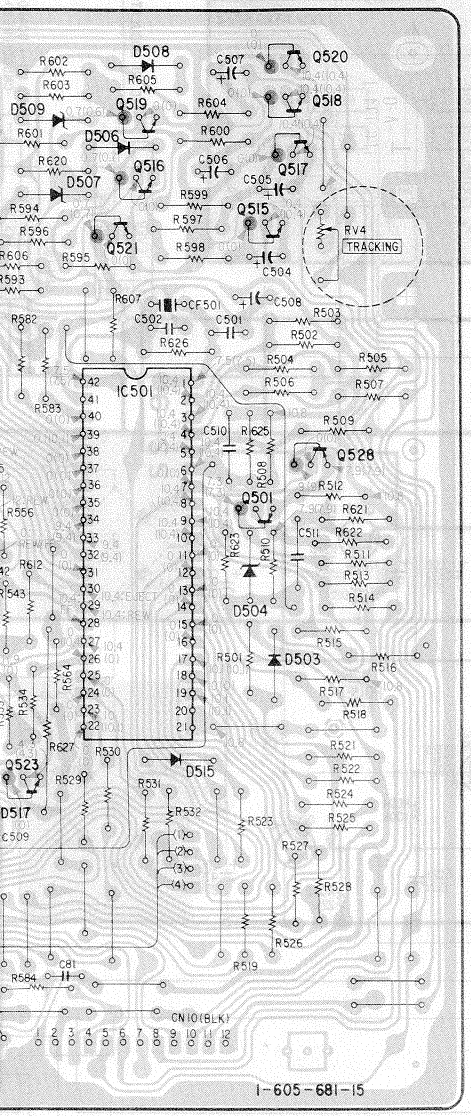
D101 REC
S101 REC
1-608-543-11

OID), DR-8 · DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 · FS-23 (CASSETTE CONTROL SWITCH),

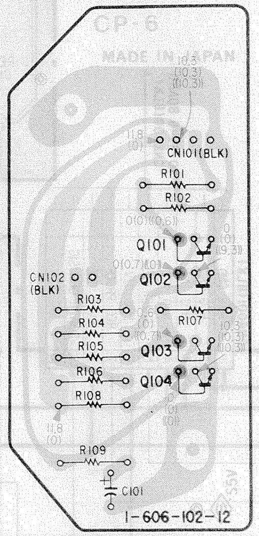
100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –

523 521 519 516 IC501 520 518 515 517 528 101 102 103 104
509 507 2 506 508 515 504 503 1 101
RV4

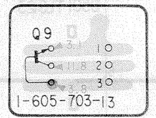
Q, IC	9 001 003 004 010 005 006 008 007 002 020 021 017 019 018 029 028 027 026 025 024 034 023 030 031 022 016 013 015 014 012 011	Q, IC
D	19 17 003 012 011 008 009 010 007 006 005 004 013 014 015 001	D
ADJ,TP	TP001	ADJ,TP

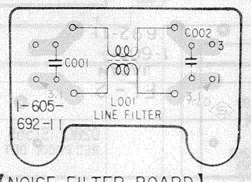

IC501
RV4
TRACKING
CN101(BLK)
1-605-681-15

【CAMERA PLAY BOARD】
— CP-6 —
(Conductor Side)


CP-6
MADE IN JAPAN
CN101(BLK)
CN102 (BLK)
Q101
Q102
Q103
Q104
1-606-102-12

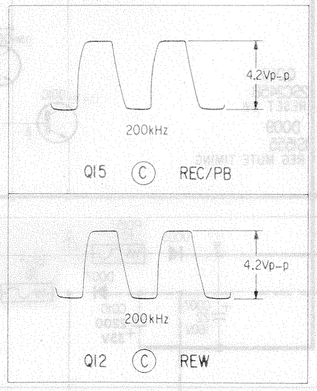
【REEL MOTOR DRIVE BOARD】
— DR-10 —
(Conductor Side)


Q9
1-605-703-13

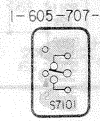

C001
C002
L001
LINE FILTER
1-605-692-11

【NOISE FILTER BOARD】
— FL-2 —
(Conductor Side)

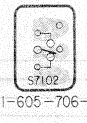
DR-1 BOARD

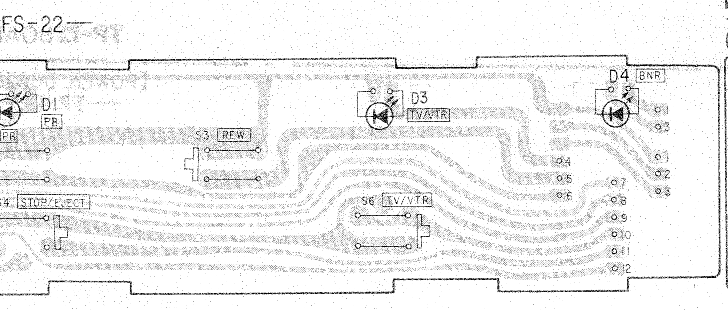


【CASSETTE DET SWITCH BOARD】 — TT-4 —
(Conductor Side)

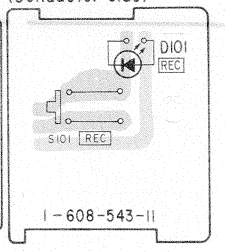

1-605-707-12
S7101

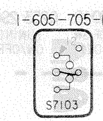
【CASSETTE DOWN DET SWITCH BOARD】
— TT-3 —
(Conductor Side)


S7102
1-605-706-12

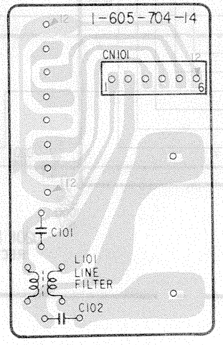

FS-22
D1
PB
D3
TV/VTR
D4
BNR
S3
REW
STOP/EJECT
S6
TV/VTR

【REC SWITCH BOARD】
— FS-23 —
(Conductor side)


D101
REC
S101
REC
1-608-543-11

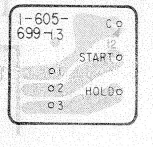

1-605-705-12
S7103

【CASSETTE OFF SWITCH BOARD】
— TT-2 —
(Conductor Side)

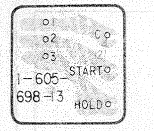

1-605-704-14
CN101
C101
L101
LINE FILTER
C102

【FRONT LOADING MOTOR BOARD】 — TT-5 —
(Conductor Side)

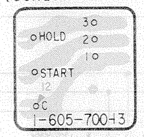
【BRAKE SOLENOID BOARD】
— DR-6 —
(Conductor Side)


1-605-699-13
START
HOLD

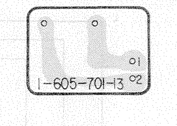
【FF SOLENOID BOARD】
— DR-5 —
(Conductor Side)


START
1-605-698-13
HOLD

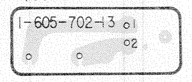
【FWD/EJECT SOLENOID BOARD】
— DR-7 —
(Conductor Side)


HOLD
START
1-605-700-13

— DR-8 —
(Conductor Side)

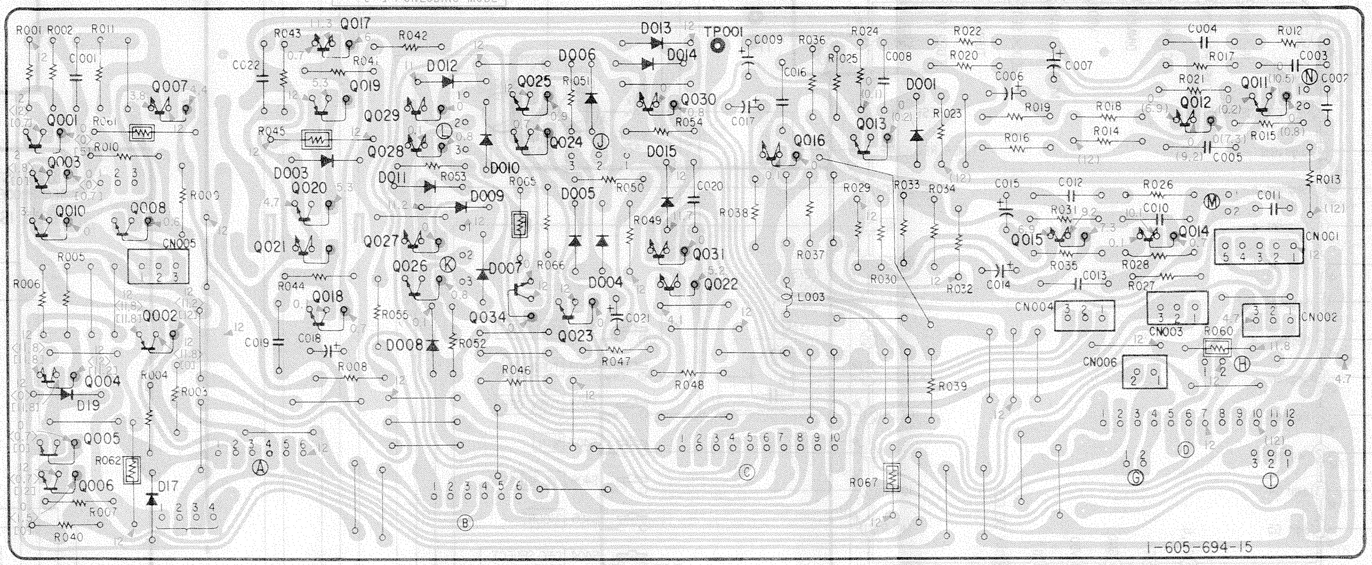


— DR-9 —
(Conductor Side)

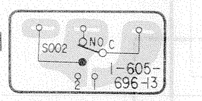


【MOTOR/SOLENOID DRIVE BOARD】
— DR-1 — (Conductor Side)

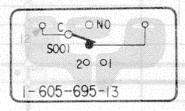
NO MARK : REC/PB MODE
( ) : REW MODE
< > : LODING MODE
[ ] : UNLODING MODE

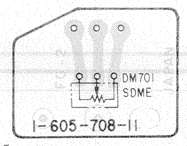

TP001
Q001
Q007
Q017
Q019
Q029
Q025
Q030
Q016
Q013
Q012
Q011
Q015
Q014
1-605-694-15

【THREADING END DET BOARD】
— DR-3 —
(Component Side)

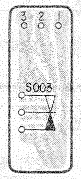

S002
NO
C
1-605-696-13

【UNTHREADING END DET BOARD】
— DR-2 —
(Component Side)


C
NO
S001
1-605-695-13

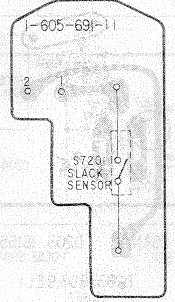

DM701
SDME
1-605-708-11

【CAPSTAN FLY FG BOARD】
— FG-2 —
(Conductor Side)



【REC PROOF SWITCH BOARD】 — DR-4 —
(Conductor Side)
1-605-697-14

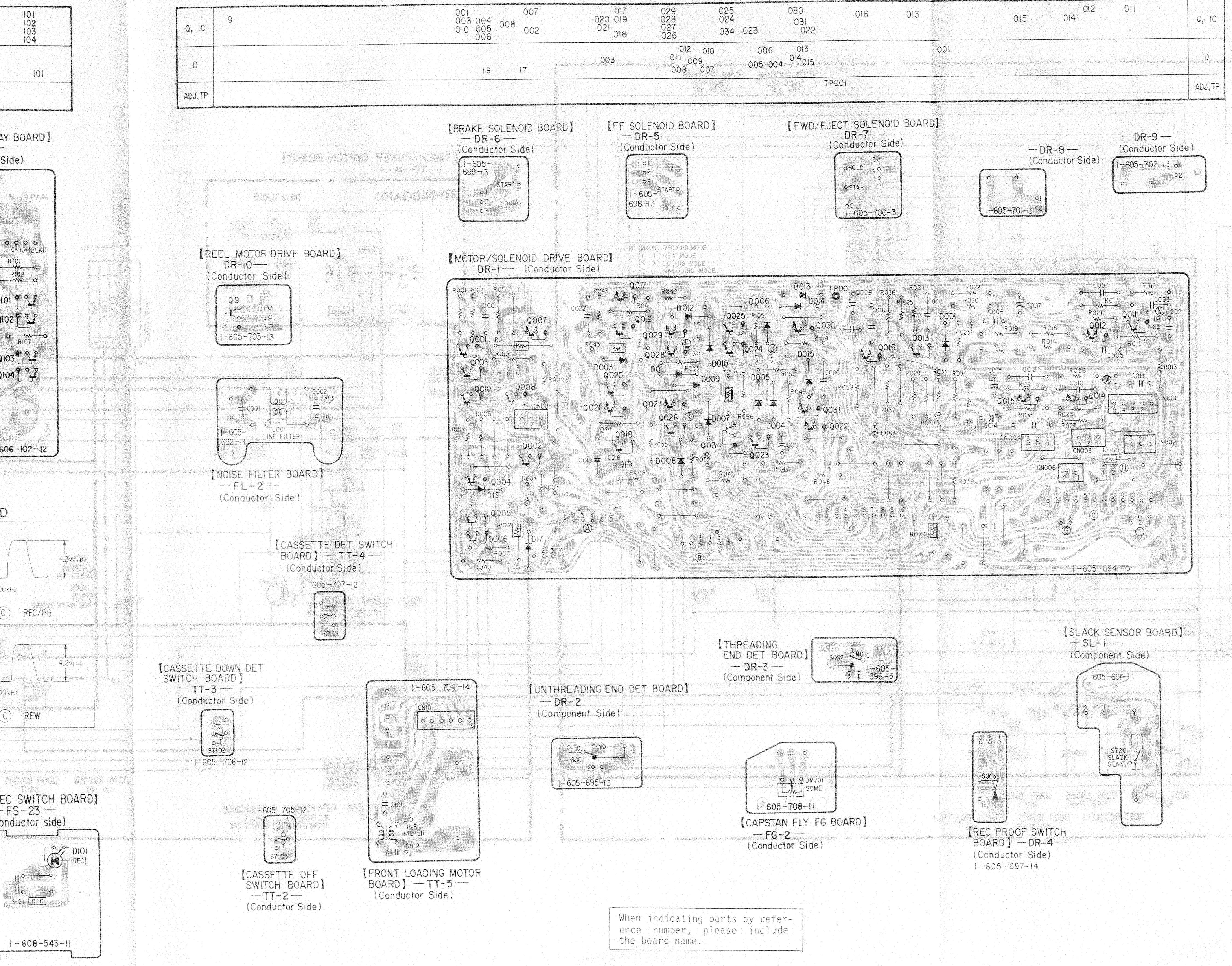
【SLACK SENSOR BOARD】
— SL-1 —
(Component Side)


1-605-691-11
S7201
SLACK
SENSOR

When indicating parts by reference number, please include the board name.

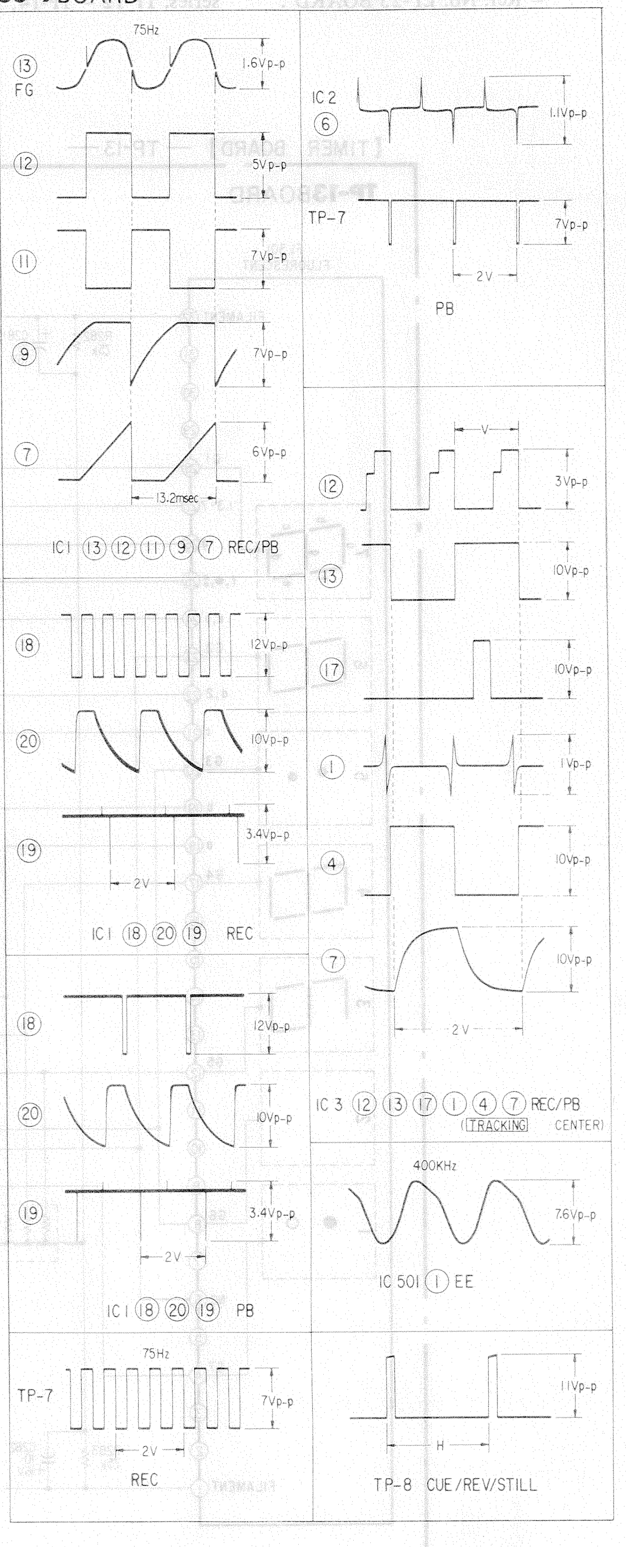
FS-23 (CASSETTE CONTROL SWITCH),

Q, IC	9 001 003 004 010 005 006 008 007 002 020 017 019 021 018 029 028 027 026 025 024 034 023 030 031 022 016 013 015 014 012 011	Q, IC
D	19 17 003 012 011 010 009 008 007 006 005 004 013 014 015 001	D
ADJ,TP	TP001	ADJ,TP


101
102
103
104
101
AY BOARD】
Side)
CN101(BLK)
R101
R102
Q101
Q102
R107
Q103
Q104
606-102-12
D
4.2Vp-p
00kHz
C REC/PB
4.2Vp-p
00kHz
C REW
EC SWITCH BOARD】
—FS-23—
onductor side)
D101
REC
S101 REC
1-608-543-11
【BRAKE SOLENOID BOARD】
—DR-6—
(Conductor Side)
1-605-699-13
START
HOLD
【FF SOLENOID BOARD】
—DR-5—
(Conductor Side)
1-605-698-13
START
HOLD
【FWD/EJECT SOLENOID BOARD】
—DR-7—
(Conductor Side)
HOLD
START
1-605-700-13
—DR-8—
(Conductor Side)
1-605-701-13
—DR-9—
(Conductor Side)
1-605-702-13
【REEL MOTOR DRIVE BOARD】
—DR-10—
(Conductor Side)
Q9
1-605-703-13
【MOTOR/SOLENOID DRIVE BOARD】
—DR-1— (Conductor Side)
NO MARK : REC/PB MODE
( ) : REW MODE
< > : LOADING MODE
〔 〕 : UNLOADING MODE
TP001
1-605-694-15
C001
C002
L001 LINE FILTER
1-605-692-11
【NOISE FILTER BOARD】
—FL-2—
(Conductor Side)
【CASSETTE DET SWITCH BOARD】 —TT-4—
(Conductor Side)
1-605-707-12
S7101
【THREADING END DET BOARD】
—DR-3—
(Component Side)
S002 NO C
1-605-696-13
【SLACK SENSOR BOARD】
—SL-1—
(Component Side)
1-605-691-11
S7201 SLACK SENSOR
【CASSETTE DOWN DET SWITCH BOARD】
—TT-3—
(Conductor Side)
S7102
1-605-706-12
1-605-704-14
CN101
C101
L101 LINE FILTER
C102
【FRONT LOADING MOTOR BOARD】 —TT-5—
(Conductor Side)
【UNTHREADING END DET BOARD】
—DR-2—
(Component Side)
S001 C NO
1-605-695-13
DM701 SDME
1-605-708-11
【CAPSTAN FLY FG BOARD】
—FG-2—
(Conductor Side)
S003
【REC PROOF SWITCH BOARD】 —DR-4—
(Conductor Side)
1-605-697-14
1-605-705-12
S7103
【CASSETTE OFF SWITCH BOARD】
—TT-2—
(Conductor Side)

When indicating parts by reference number, please include the board name.

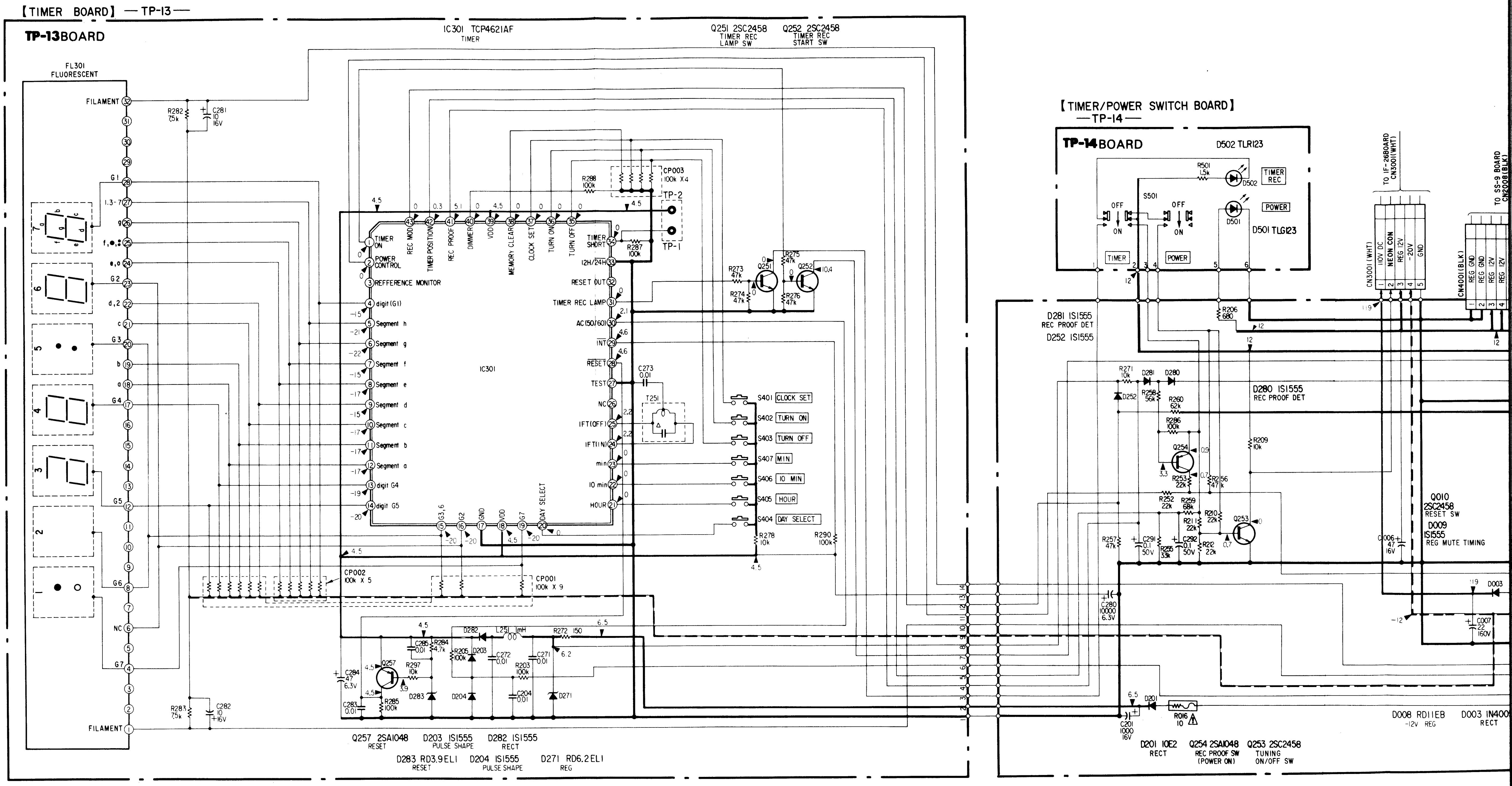
SS-9 BOARD



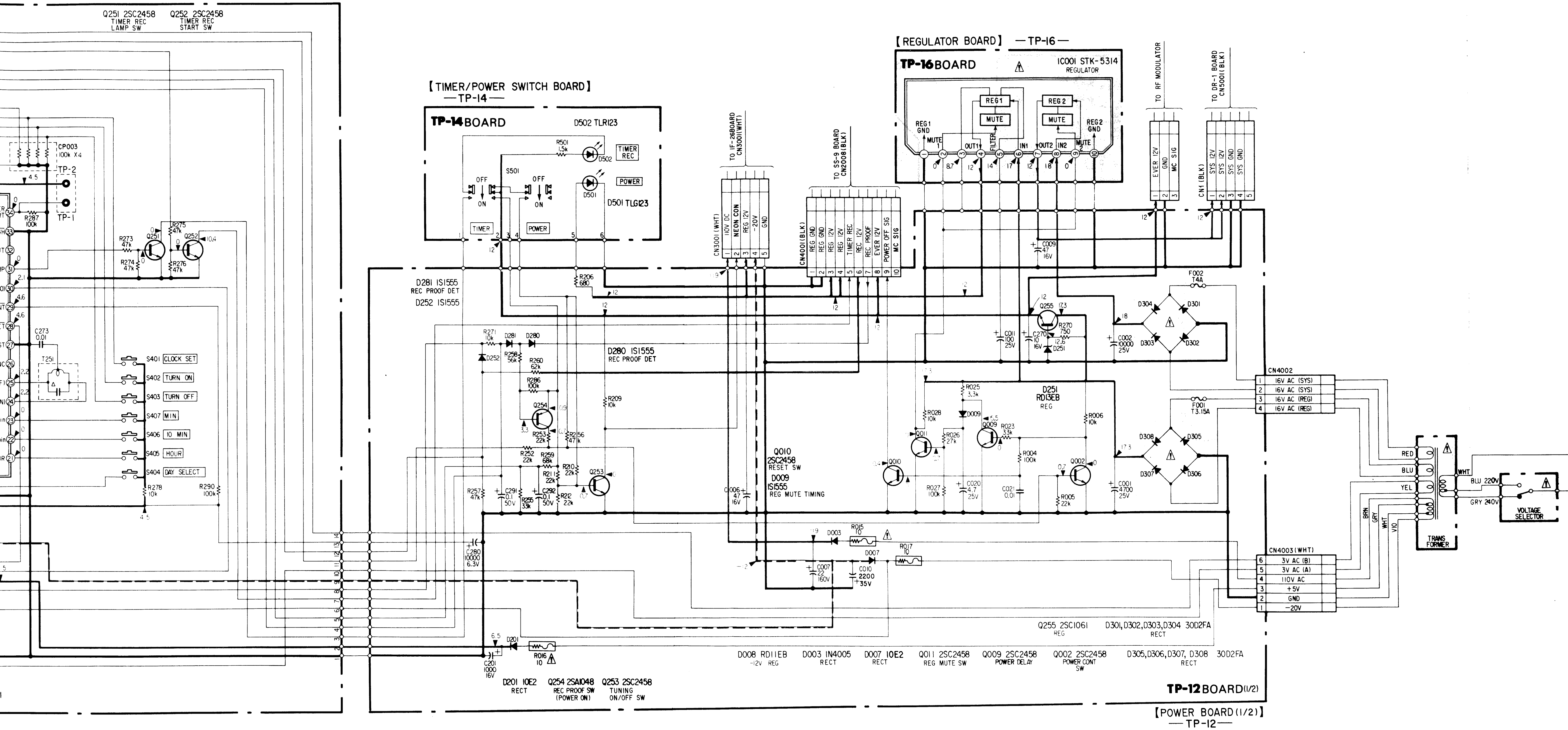
POWER SUPPLY, TIMER POWER SUPPLY, TIMER

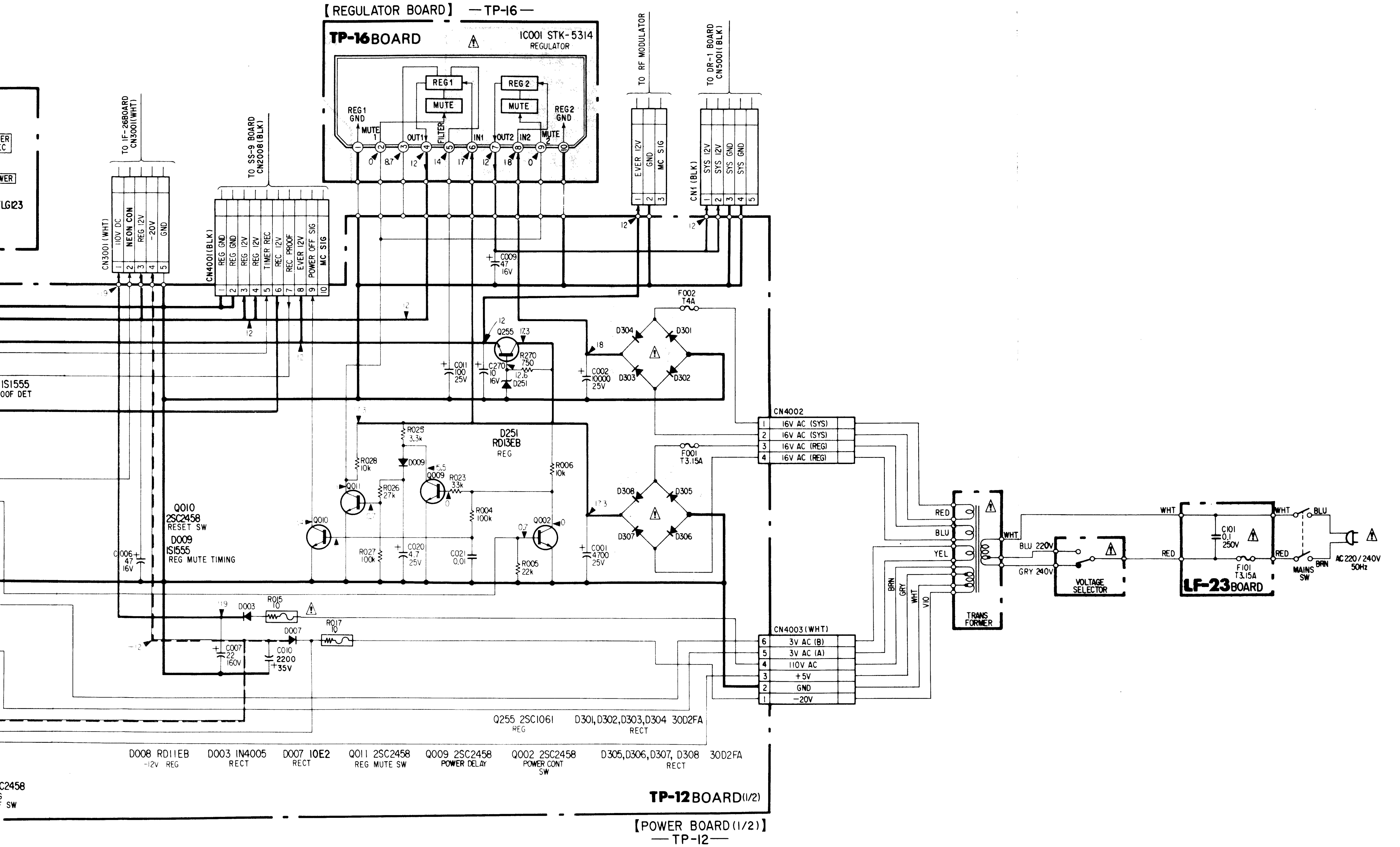
LF-23 (FUSE), TP-12 (POWER SUPPLY, TUNER), TP-13 (TIMER CONTROL, TIMER PRESET), TP-14 (TIMER & POWER SWITCH), TP-16 (REGULATOR) BOARDS SCHEMATIC DIAGRAM

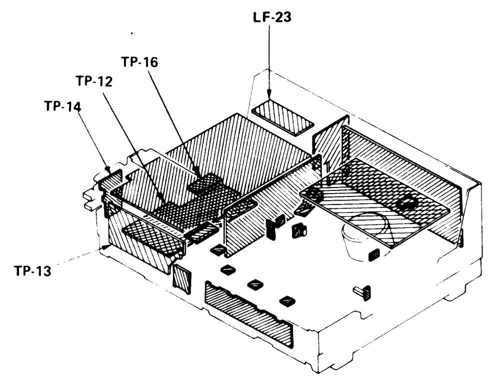
– Ref. No. LF-23 BOARD : series, TP-12 – TP-14, TP-16 BOARDS : 4000 series –


【TIMER BOARD】 —TP-13—
TP-13BOARD
FL301 FLUORESCENT
FILAMENT
IC301 TCP4621AF TIMER
Q251 2SC2458 TIMER REC LAMP SW
Q252 2SC2458 TIMER REC START SW
R282 7.5k
C281 10 16V
CP003 100k X4
TP-2
TP-1
R288 100k
R287 100k
TIMER ON
POWER CONTROL
REFFERENCE MONITOR
digit (G1)
Segment h
Segment g
Segment f
Segment e
Segment d
Segment c
Segment b
Segment a
digit G4
digit G5
REC MODE
TIMER POSITION
REC PROOF
DIMMER
VDD
MEMORY CLEAR
CLOCK SET
TURN ON
TURN OFF
TIMER SHORT
12H/24H
RESET OUT
TIMER REC LAMP
AC(50/60)
INT
RESET
TEST
NC
IFT(OFF)
IFT(ON)
min
10 min
HOUR
DAY SELECT
G3,6
G2
GND
VDD
G7
IC301
C273 0.01
T251
R273 47k
R274 47k
R275 47k
R276 47k
S401 CLOCK SET
S402 TURN ON
S403 TURN OFF
S407 MIN
S406 10 MIN
S405 HOUR
S404 DAY SELECT
R278 10k
R290 100k
CP002 100k X 5
CP001 100k X 9
D282
L251 1mH
R272 150
C285 0.01
R284 4.7k
R205 100k
D203
C272 0.01
C271 0.01
R203 100k
C284 47 6.3V
Q257
R297 10k
C283 0.01
R285 100k
D283
D204
C204 0.01
D271
R283 7.5k
C282 10 16V
Q257 2SA1048 RESET
D203 1S1555 PULSE SHAPE
D282 1S1555 RECT
D283 RD3.9EL1 RESET
D204 1S1555 PULSE SHAPE
D271 RD6.2EL1 REG
【TIMER/POWER SWITCH BOARD】 —TP-14—
TP-14BOARD
D502 TLR123
R501 1.5k
TIMER REC
S501
OFF
ON
POWER
D501 TLG123
TIMER
D281 1S1555 REC PROOF DET
D252 1S1555
R206 680
R271 10k
D281
D280
R258 56k
R260 62k
R286 100k
Q254
R253 22k
R256 47k
R252 22k
R259 68k
R211 22k
R210 22k
Q253
R209 10k
D280 1S1555 REC PROOF DET
R257 47k
C291 0.1 50V
R255 33k
C292 0.1 50V
R212 22k
C280 10000 6.3V
C201 1000 16V
D201
R016 10
D201 10E2 RECT
Q254 2SA1048 REC PROOF SW (POWER ON)
Q253 2SC2458 TUNING ON/OFF SW
Q010 2SC2458 RESET SW
D009 1S1555 REG MUTE TIMING
C006 47 16V
C007 22 160V
D003
TO IF-2680ARD CN3001(WHT)
CN3001(WHT)
110V DC
NEON CON
REG 12V
-20V
GND
TO SS-9 BOARD CN2008(BLK)
CN4001(BLK)
REG GND
REG GND
REG 12V
REG 12V
D008 RD11EB -12V REG
D003 IN400 RECT

R & POWER SWITCH), TP-16 (REGULATOR) BOARDS SCHEMATIC DIAGRAM


Q251 2SC2458 TIMER REC LAMP SW
Q252 2SC2458 TIMER REC START SW
CP003 100k X4
TP-2
TP-1
R287 100k
R273 47k
R274 47k
R275 47k
R276 47k
C273 0.01
T251
S401 CLOCK SET
S402 TURN ON
S403 TURN OFF
S407 MIN
S406 10 MIN
S405 HOUR
S404 DAY SELECT
R278 10k
R290 100k
【TIMER/POWER SWITCH BOARD】
—TP-14—
TP-14 BOARD
D502 TLR123
R501 1.5k
TIMER REC
POWER
S501
OFF
ON
D501 TLG123
TIMER
POWER
R206 680
D281 1S1555 REC PROOF DET
D252 1S1555
R271 10k
D281
D280
D252
R258 56k
R260 62k
R286 100k
Q254
R253 22k
R256 47k
R209 10k
D280 1S1555 REC PROOF DET
R252 22k
R259 68k
R211 22k
R210 22k
Q253
R257 47k
C291 0.1 50V
R255 33k
C292 0.1 50V
R212 22k
C280 10000 6.3V
C201 1000 16V
D201
R016 10
D201 10E2 RECT
Q254 2SA1048 REC PROOF SW (POWER ON)
Q253 2SC2458 TUNING ON/OFF SW
TO IF-26 BOARD CN3001 (WHT)
CN3001 (WHT)
110V DC
NEON CON
REG 12V
-20V
GND
TO SS-9 BOARD CN2008 (BLK)
CN4001 (BLK)
REG GND
REG GND
REG 12V
REG 12V
TIMER REC
REC 12V
REC PROOF
EVER 12V
POWER OFF SIG
MC SIG
C006 47 16V
Q010 2SC2458 RESET SW
D009 1S1555 REG MUTE TIMING
D003
R015 10
D007
R017 10
C007 22 160V
C010 2200 35V
【REGULATOR BOARD】 —TP-16—
TP-16 BOARD
IC001 STK-5314 REGULATOR
REG1
REG2
MUTE
MUTE
REG1 GND
MUTE 1
OUT1
FILTER
IN1
OUT2
IN2
MUTE 2
REG2 GND
C009 47 16V
TO RF MODULATOR
EVER 12V
GND
MC SIG
TO DR-1 BOARD CN5001 (BLK)
CN1 (BLK)
SYS 12V
SYS 12V
SYS GND
SYS GND
Q255
R270 750
C011 100 25V
C270 10 16V
D251
C002 10000 25V
F002 T4A
D304
D301
D303
D302
D251 RD13EB REG
R025 3.3k
R028 10k
D009
Q009
R023 33k
R026 27k
Q011
R006 10k
R004 100k
Q010
Q002
R027 100k
C020 4.7 25V
C021 0.01
R005 22k
C001 4700 25V
F001 T3.15A
D308
D305
D307
D306
CN4002
16V AC (SYS)
16V AC (SYS)
16V AC (REG)
16V AC (REG)
RED
BLU
YEL
BRN
GRY
WHT
VIO
WHT
BLU 220V
GRY 240V
VOLTAGE SELECTOR
TRANS FORMER
CN4003 (WHT)
3V AC (B)
3V AC (A)
110V AC
+5V
GND
-20V
Q255 2SC1061 REG
D301, D302, D303, D304 30D2FA RECT
D008 RD11EB -12V REG
D003 1N4005 RECT
D007 10E2 RECT
Q011 2SC2458 REG MUTE SW
Q009 2SC2458 POWER DELAY
Q002 2SC2458 POWER CONT SW
D305, D306, D307, D308 30D2FA RECT
TP-12 BOARD (1/2)
【POWER BOARD (1/2)】
—TP-12—


[REGULATOR BOARD] —TP-16—
TP-16 BOARD
IC001 STK-5314 REGULATOR
REG1
REG2
MUTE
REG1 GND
REG2 GND
OUT1
FILTER
IN1
OUT2
IN2
TO IF-26 BOARD CN3001(WHT)
TO SS-9 BOARD CN2008(BLK)
TO RF MODULATOR
TO DR-1 BOARD CN5001(BLK)
CN3001(WHT)
110V DC
NEON CON
REG 12V
-20V
GND
CN4001(BLK)
REG GND
REG GND
REG 12V
TIMER REC
REC 12V
REC PROOF
EVER 12V
POWER OFF SIG
MC SIG
EVER 12V
GND
MC SIG
CN1(BLK)
SYS 12V
SYS 12V
SYS GND
SYS GND
F002 T4A
D304
D301
D303
D302
Q255
R270 750
C270 10 16V
D251
C011 100 25V
C002 10000 25V
C009 47 16V
CN4002
16V AC (SYS)
16V AC (SYS)
16V AC (REG)
16V AC (REG)
F001 T3.15A
D251 RD13EB REG
R025 3.3k
R028 10k
D009
Q009
R023 3.3k
R006 10k
Q011
R026 27k
R004 100k
Q010 2SC2458 RESET SW
D009 1S1555 REG MUTE TIMING
Q002
R027 100k
C020 4.7 25V
C021 0.01
R005 22k
C001 4700 25V
D308
D305
D307
D306
C006 47 16V
D003
R015 10
D007
R017 10
C007 22 160V
C010 2200 35V
CN4003(WHT)
3V AC (B)
3V AC (A)
110V AC
+5V
GND
-20V
RED
BLU
YEL
BRN
GRY
WHT
VIO
TRANS FORMER
BLU 220V
GRY 240V
VOLTAGE SELECTOR
WHT
RED
C101 0.1 250V
F101 T3.15A
LF-23 BOARD
BLU
BRN
MAINS SW
AC220/240V 50Hz
1S1555
PROOF DET
LG123
2SC2458
SW
Q255 2SC1061 REG
D301,D302,D303,D304 30D2FA RECT
D008 RD11EB -12V REG
D003 1N4005 RECT
D007 10E2 RECT
Q011 2SC2458 REG MUTE SW
Q009 2SC2458 POWER DELAY
Q002 2SC2458 POWER CONT SW
D305,D306,D307,D308 30D2FA RECT
TP-12 BOARD (1/2)
[POWER BOARD (1/2)] —TP-12—


LF-23
TP-16
TP-12
TP-14
TP-13

Note:

- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

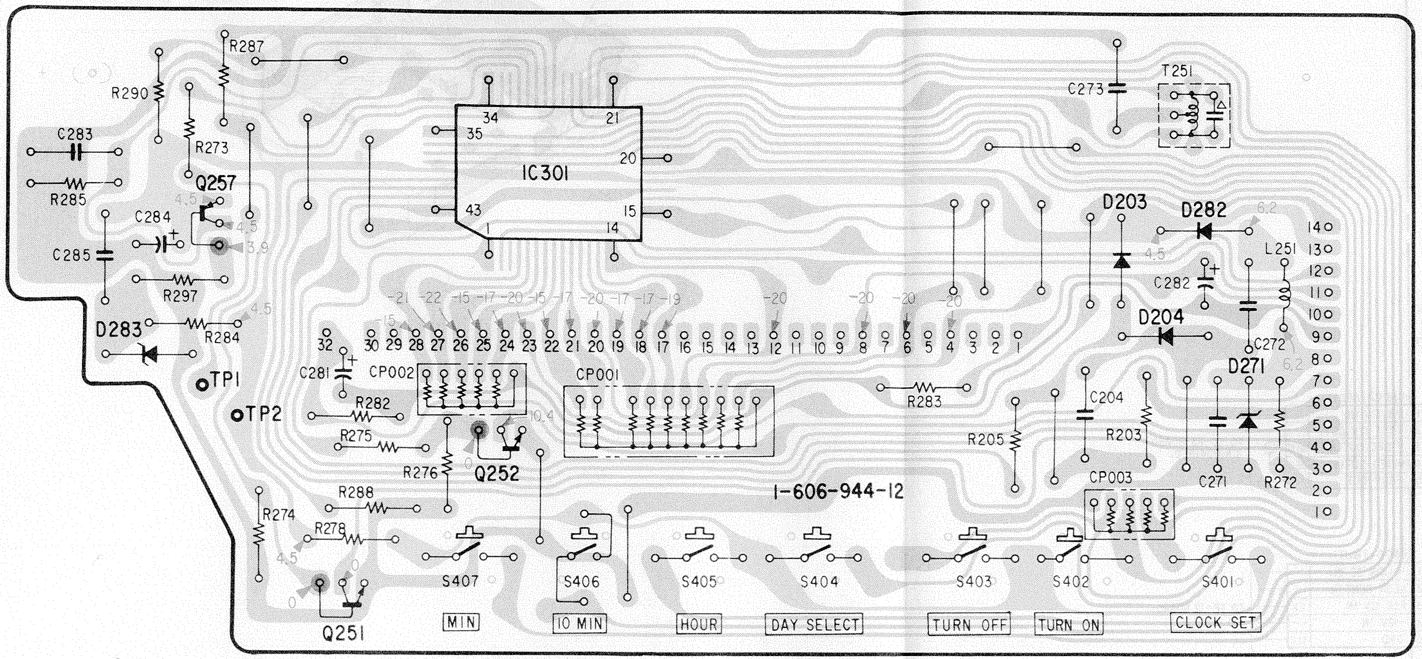
When indicating parts by reference number, please include the board name.

LF-23 (FUSE), TP-12 (POWER SUPPLY, TUNER), TP-13 (TIMER CONTROL, TIMER PRESET), TP-14 (TIMER & POWER SWITCH), TP-16 (REGULATOR) PRINTED WIRING BOARDS

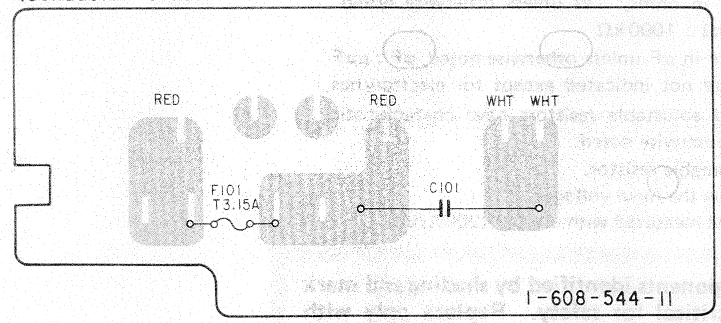
– Ref. No. LF-23 BOARD : 8100 series, TP-12 – TP-14, TP-16 BOARDS : 4000 series –

IC, Q	D	ADJ (TP, RV)
IC301		
257	282	
	203	
	204	
	283	
		TP1
252	271	TP2
251		

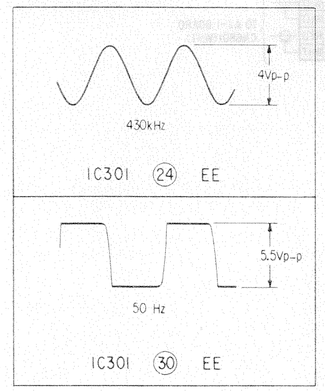
【TIMER BOARD】 —TP-13—
(Conductor Side)


IC301
34
35
21
20
43
1
14
15
R287
R290
R273
C283
R285
Q257
C284
C285
R297
D283
R284
TP1
TP2
C281
CP002
R282
R275
R276
Q252
CP001
R283
R205
R203
C204
CP003
C271
R272
C273
T251
D203
D282
C282
L251
D204
C272
D271
R274
R278
R288
Q251
S407
S406
S405
S404
S403
S402
S401
MIN
10 MIN
HOUR
DAY SELECT
TURN OFF
TURN ON
CLOCK SET
1-606-944-12
140
130
120
110
100
90
80
70
60
50
40
30
20
10

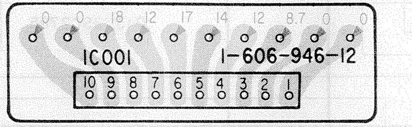
【FUSE BOARD】 —LF-23—
(Conductor Side)


RED
RED
WHT
WHT
F101
T3.15A
C101
1-608-544-11

TP-13 BOARD



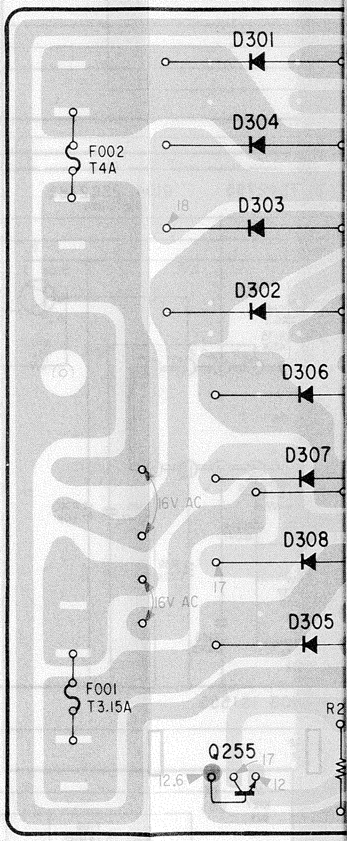
IC, Q	IC001	255
D		301, 304, 303, 302 306, 307, 308
ADJ (TP, RV)		


IC001
1-606-946-12
10 9 8 7 6 5 4 3 2 1

【REGULATOR BOARD】
—TP-16—
(Conductor Side)

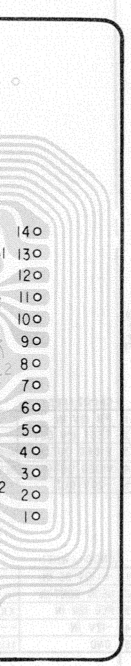
【POWER BOARD】 —TP-1

(Conductor Side)

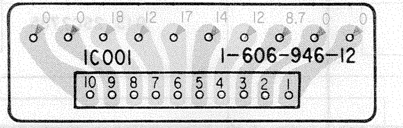

D301
D304
F002
T4A
D303
D302
D306
D307
D308
D305
F001
T3.15A
Q255
16V AC
16V AC

TOR) PRINTED WIRING BOARDS

IC, Q	IC001 255 011 009 253 254 002 010
D	301,304,303,302 306,307,308,305 251 201 281 007 003 009 008 280 252 501 502
ADJ (TP, RV)	



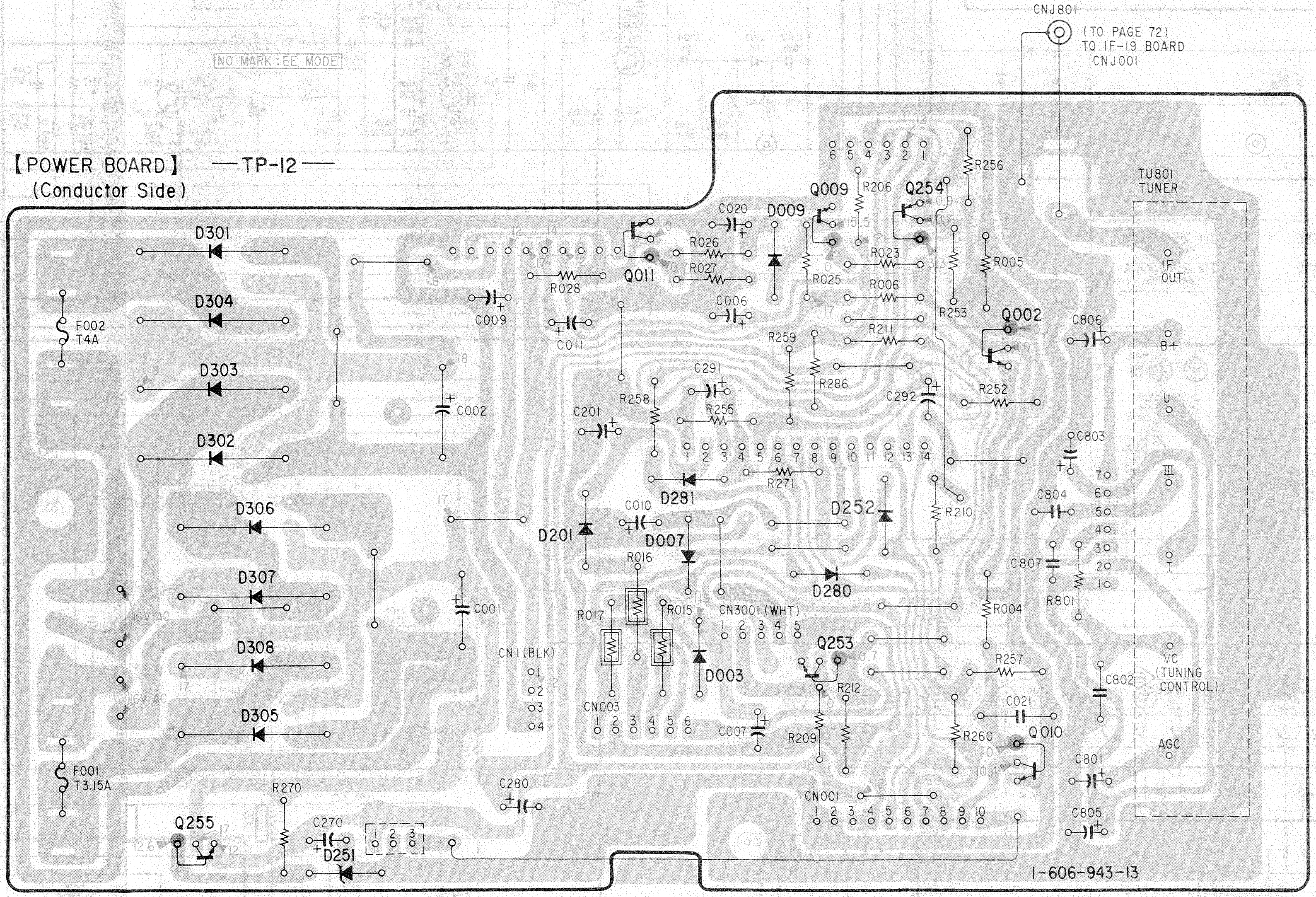
140
130
120
110
100
90
80
70
60
50
40
30
20
10



IC001
1-606-946-12
10 9 8 7 6 5 4 3 2 1

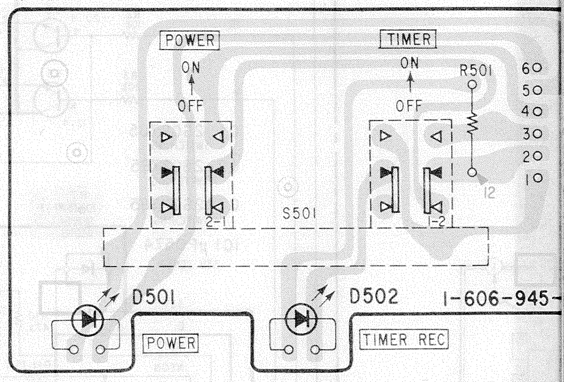
【REGULATOR BOARD】
—TP-16—
(Conductor Side)

【POWER BOARD】 —TP-12—
(Conductor Side)



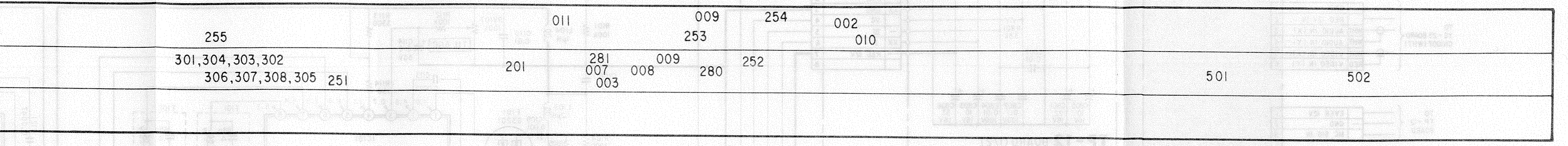
CNJ801
(TO PAGE 72)
TO IF-19 BOARD
CNJ001
D301
D304
D303
D302
D306
D307
D308
D305
F002
T4A
F001
T3.15A
16V AC
16V AC
Q255
R270
C270
D251
C280
C009
C011
C002
C001
CN1(BLK)
Q011
R028
R026
R027
C020
D009
Q009
R206
Q254
R256
R025
R023
R006
R005
R211
R253
Q002
C806
C006
R259
R286
C291
R255
C292
R252
C201
R258
D281
R271
C010
D201
D007
D252
R210
C803
C804
C807
R016
R017
R015
CN3001(WHT)
D280
R004
R801
Q253
R212
D003
CN003
C007
R209
R257
C021
R260
Q010
C802
C801
C805
CN001
TU801
TUNER
IF OUT
B+
U
III
VC (TUNING CONTROL)
AGC
1-606-943-13

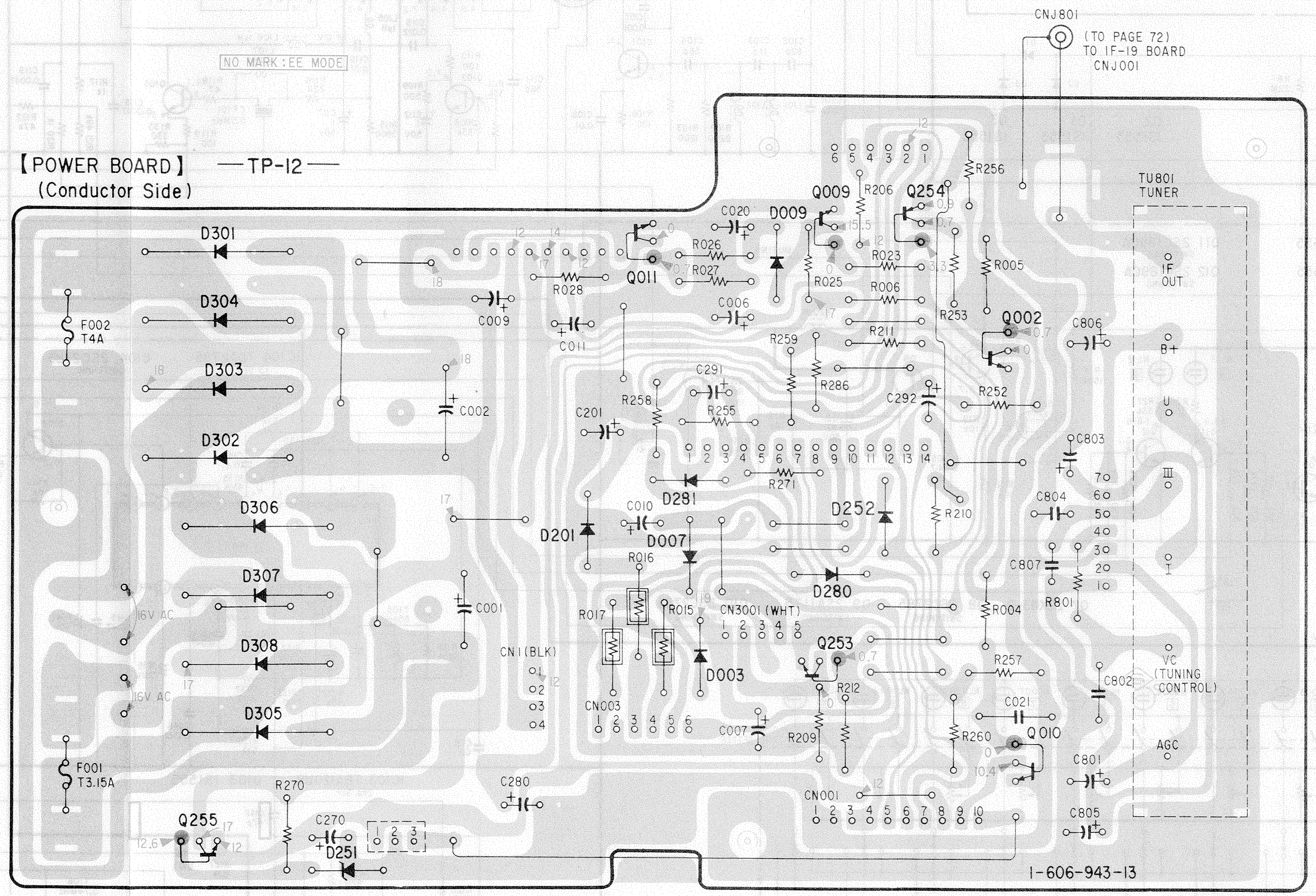
【TIMER/POWER SWITCH BOARD】 —TP-14—
(Conductor Side)



POWER
ON
OFF
TIMER
ON
OFF
R501
S501
D501
D502
POWER
TIMER REC
1-606-945-

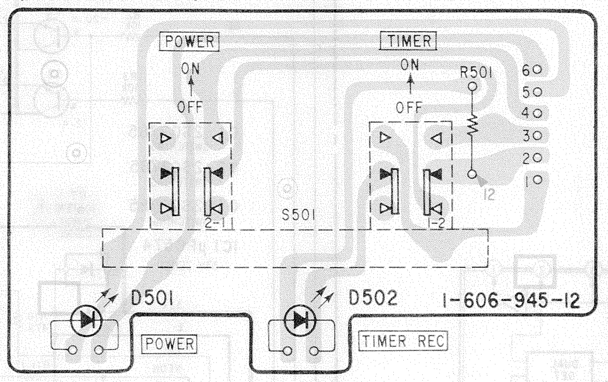
When indicating parts by refe ence number, please includ the board name.


255
301,304,303,302
306,307,308,305
251
201
011
281
007
003
008
009
009
253
280
254
252
002
010
501
502


CNJ801
(TO PAGE 72)
TO IF-19 BOARD
CNJ001
TU801
TUNER
IF OUT
B+
U
Ⅲ
VC (TUNING CONTROL)
AGC
F002 T4A
F001 T3.15A
16V AC
16V AC
D301
D304
D303
D302
D306
D307
D308
D305
C001
C002
C009
C011
Q011
R028
R026
R027
C020
D009
Q009
R206
Q254
R256
R025
R023
R006
R005
R253
Q002
C806
C006
R259
R211
R286
C291
R255
R258
C201
C292
R252
C803
D281
R271
D252
R210
C804
C010
D201
D007
R016
D280
C807
R801
R004
R017
R015
CN3001 (WHT)
CN1 (BLK)
CN003
D003
Q253
R212
R257
C802
C007
R209
C021
R260
Q010
C801
CN001
C805
C280
R270
C270
Q255
D251
1-606-943-13

【POWER BOARD】 —TP-12—
(Conductor Side)

【TIMER/POWER SWITCH BOARD】 —TP-14—
(Conductor Side)

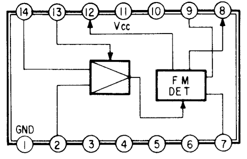

POWER
ON
OFF
TIMER
ON
OFF
R501
6
5
4
3
2
1
S501
D501
D502
POWER
TIMER REC
1-606-945-12

When indicating parts by reference number, please include the board name.

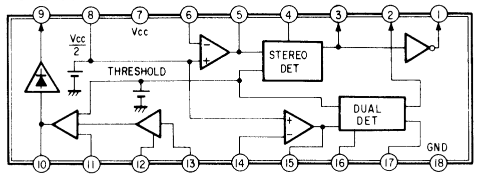
IF-26 (VIF, SIF, AFT, AGC BAND SELECTOR, ID DET, MATRIX), TP-12 (POWER SUPPLY, TUNER) BOARDS SCHEMATIC DIAGRAM

– Ref. No. IF-26 BOARD : 3000 series, TP-12 BOARD : 4000 series –

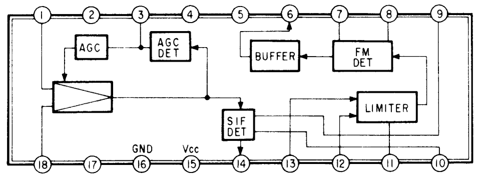
TBA120U


Vcc
FM DET
GND

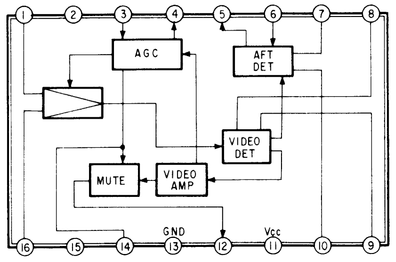
TDA2795

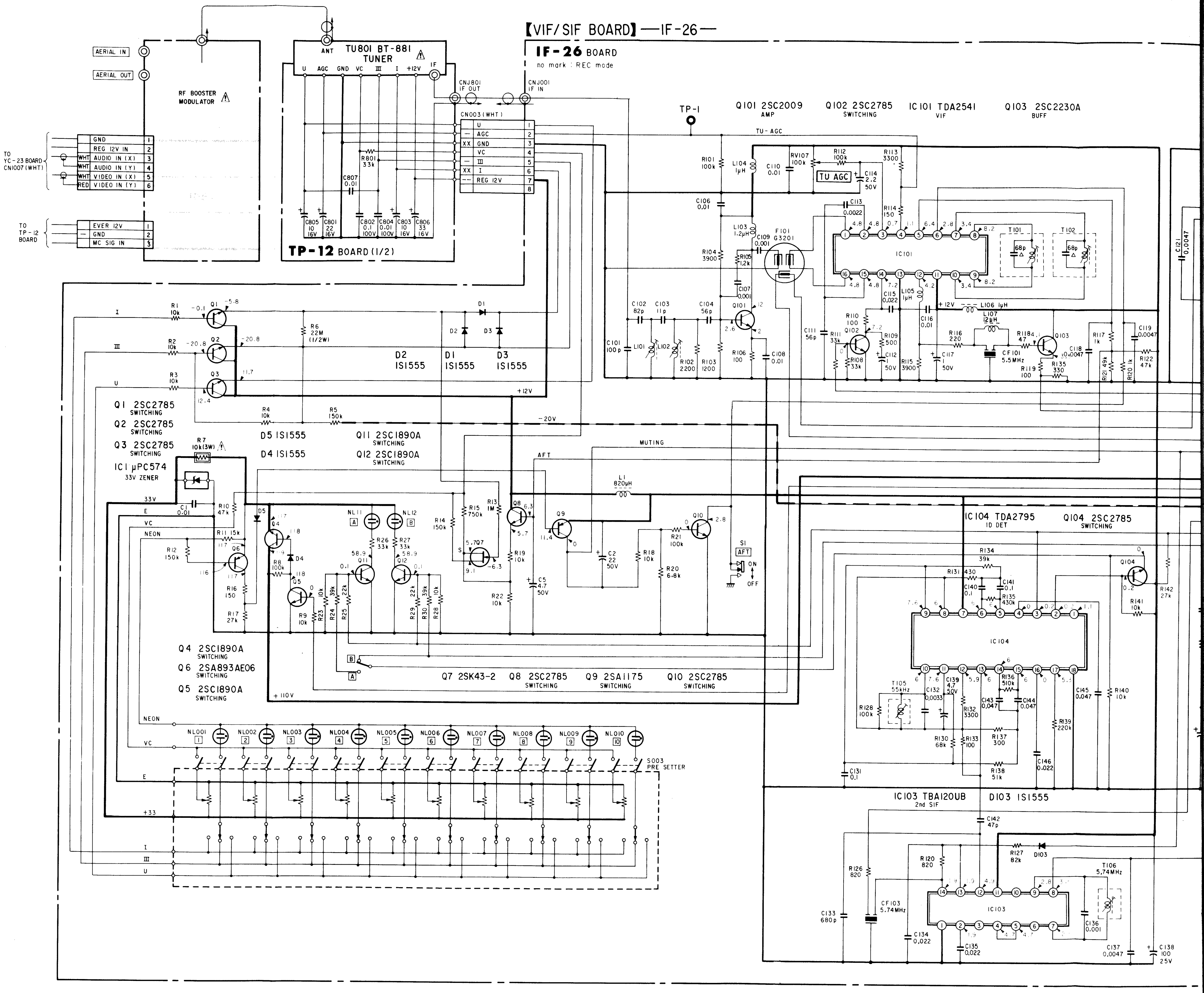

Vcc
Vcc/2
THRESHOLD
STEREO DET
DUAL DET
GND

TDA2546

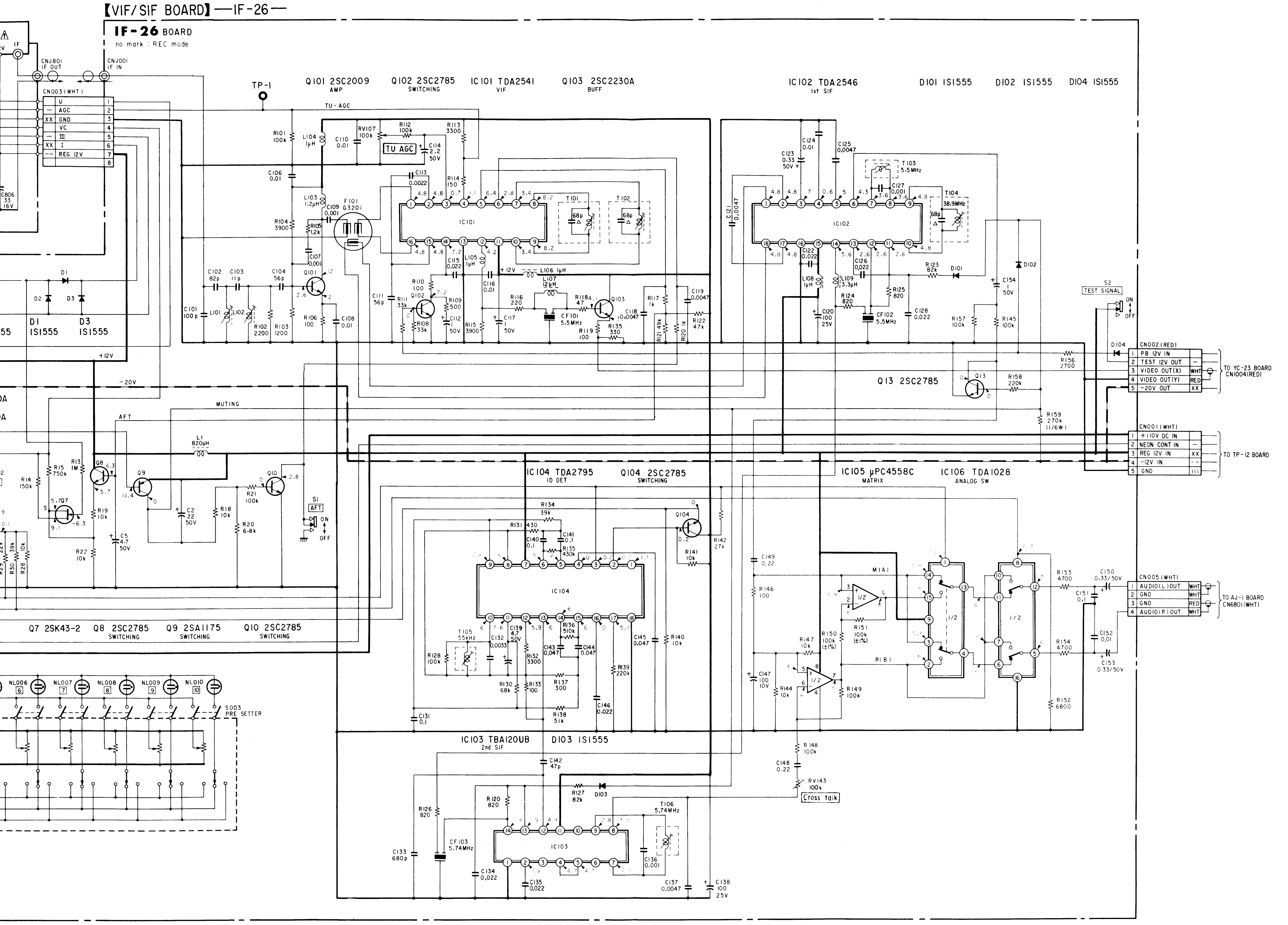

AGC
AGC DET
BUFFER
FM DET
SIF DET
LIMITER
GND
Vcc

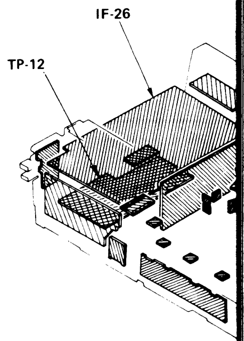
TDA2541


AGC
AFT DET
VIDEO DET
MUTE
VIDEO AMP
GND
Vcc


AERIAL IN
AERIAL OUT
RF BOOSTER MODULATOR
TO YC-23 BOARD CN1007 (WHT)
GND
REG 12V IN
AUDIO IN (X)
AUDIO IN (Y)
VIDEO IN (X)
VIDEO IN (Y)
TO TP-12 BOARD
EVER 12V
GND
MC SIG IN
TU801 BT-881 TUNER
ANT
U AGC GND VC III I +12V
IF
CNJ801 IF OUT
CNJ001 IF IN
CN003 (WHT)
U
AGC
GND
VC
III
I
REG 12V
R801 33k
C807 0.01
C805 10 16V
C801 22 16V
C802 0.1 100V
C804 0.01 100V
C803 10 16V
C806 33 16V
TP-12 BOARD (1/2)
【VIF/SIF BOARD】—IF-26—
IF-26 BOARD
no mark : REC mode
TP-1
Q101 2SC2009 AMP
Q102 2SC2785 SWITCHING
IC101 TDA2541 VIF
Q103 2SC2230A BUFF
TU-AGC
TU AGC
RV107 100k
F101 G3201
T101
T102
IC101
L106 1µH
L107 12µH
CF101 5.5MHz
I
III
U
R1 10k
R2 10k
R3 10k
Q1
Q2
Q3
R6 22M (1/2W)
D1
D2
D3
D2 1S1555
D1 1S1555
D3 1S1555
+12V
-20V
Q1 2SC2785 SWITCHING
Q2 2SC2785 SWITCHING
Q3 2SC2785 SWITCHING
IC1 µPC574 33V ZENER
R4 10k
R5 150k
D5 1S1555
D4 1S1555
Q11 2SC1890A SWITCHING
Q12 2SC1890A SWITCHING
R7 10k(3W)
MUTING
AFT
L1 820µH
33V
E
VC
NEON
NL11
NL12
S1 AFT ON OFF
Q4 2SC1890A SWITCHING
Q6 2SA893AE06 SWITCHING
Q5 2SC1890A SWITCHING
Q7 2SK43-2
Q8 2SC2785 SWITCHING
Q9 2SA1175 SWITCHING
Q10 2SC2785 SWITCHING
+110V
NL001 NL002 NL003 NL004 NL005 NL006 NL007 NL008 NL009 NL010
S003 PRE SETTER
+33
IC104 TDA2795 ID DET
Q104 2SC2785 SWITCHING
IC104
T105 55kHz
IC103 TBA120UB 2nd SIF
D103 1S1555
IC103
T106 5.74MHz
CF103 5.74MHz

DIAGRAM

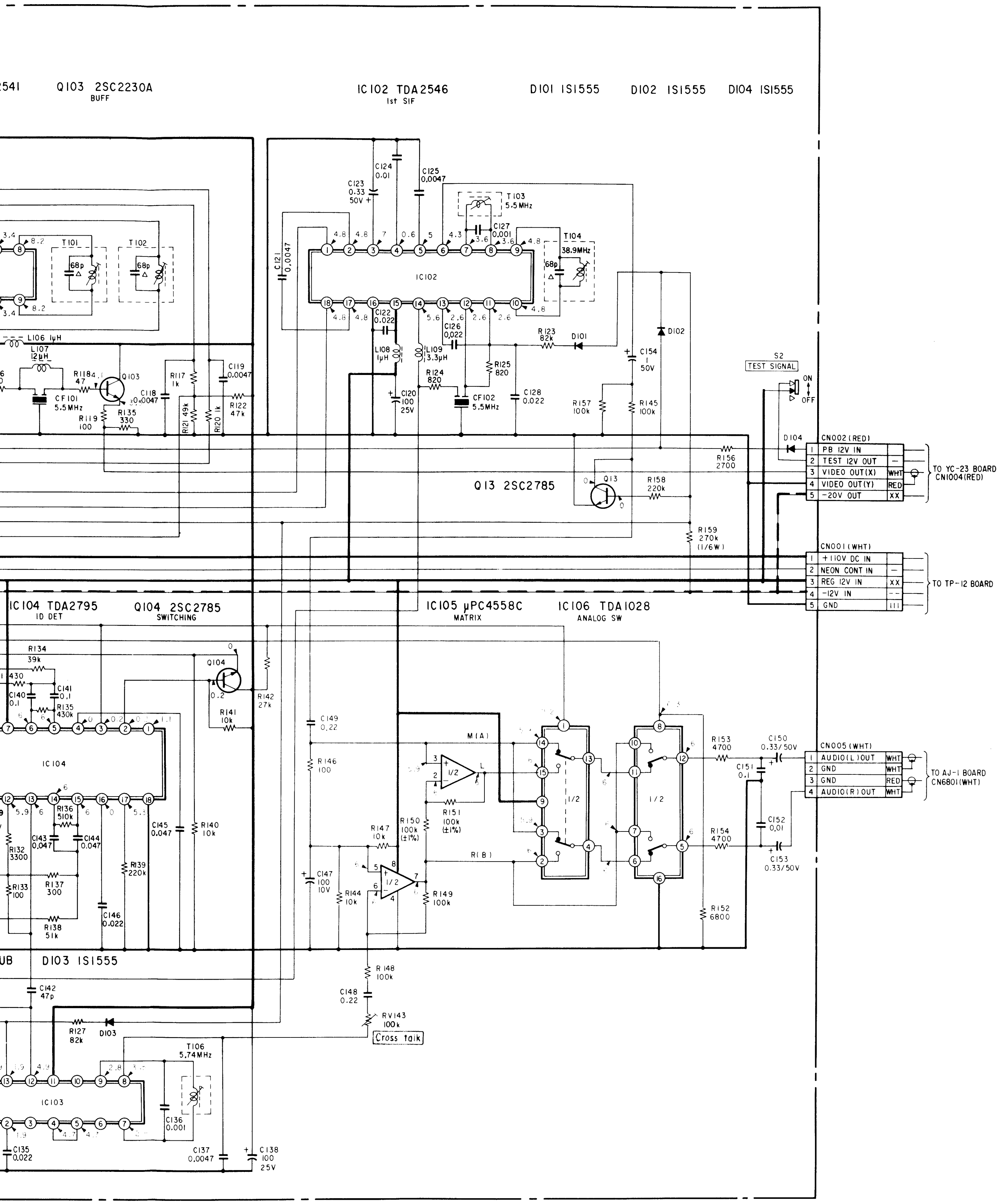

【VIF/SIF BOARD】—IF-26—
IF-26 BOARD
no mark : REC mode
CNJ801 IF OUT
CNJ001 IF IN
CN003 (WHT)
TP-1
TU-AGC
Q101 2SC2009 AMP
Q102 2SC2785 SWITCHING
IC101 TDA2541 VIF
Q103 2SC2230A BUFF
IC102 TDA2546 1st SIF
D101 1S1555
D102 1S1555
D104 1S1555
TU AGC
F101 G3201
T101
T102
T103 5.5MHz
T104 38.9MHz
CF101 5.5MHz
CF102 5.5MHz
S2 TEST SIGNAL
ON
OFF
CN002 (RED)
PB 12V IN
TEST 12V OUT
VIDEO OUT(X)
VIDEO OUT(Y)
-20V OUT
TO YC-23 BOARD CN1004(RED)
Q13 2SC2785
CN001 (WHT)
+110V DC IN
NEON CONT IN
REG 12V IN
-12V IN
GND
TO TP-12 BOARD
MUTING
AFT
L1 820μH
+12V
-20V
D1 1S1555
D3 1S1555
S1 AFT
IC104 TDA2795 ID DET
Q104 2SC2785 SWITCHING
IC105 μPC4558C MATRIX
IC106 TDA1028 ANALOG SW
M(A)
R(B)
CN005 (WHT)
AUDIO(L) OUT
AUDIO(R) OUT
TO AJ-1 BOARD CN6801(WHT)
Q7 2SK43-2
Q8 2SC2785 SWITCHING
Q9 2SA1175 SWITCHING
Q10 2SC2785 SWITCHING
T105 55kHz
S003 PRE SETTER
NL006
NL007
NL008
NL009
NL010
IC103 TBA120UB 2nd SIF
D103 1S1555
T106 5.74MHz
CF103 5.74MHz
RV143 100k
Cross talk

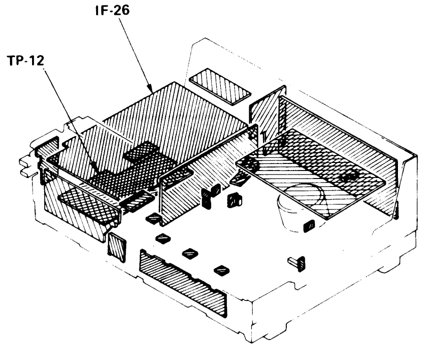


Note:
- All resistors are in ohms, ¼ W
  kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless
  50WV or less are not indicate
- All variable and adjustable re
  curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main volt
- All voltages are dc measured wit

Note: The components ident
⚠ are critical for sa
part number specified.

When indicating parts by refer-ence number, please include the board name.


Q103 2SC2230A BUFF
IC102 TDA2546 1st SIF
D101 1S1555
D102 1S1555
D104 1S1555
T101
T102
T103 5.5MHz
T104 38.9MHz
CF101 5.5MHz
CF102 5.5MHz
S2 TEST SIGNAL
ON
OFF
CN002 (RED)
1 PB 12V IN
2 TEST 12V OUT
3 VIDEO OUT (X)
4 VIDEO OUT (Y)
5 -20V OUT
TO YC-23 BOARD CN1004 (RED)
Q13 2SC2785
CN001 (WHT)
1 +110V DC IN
2 NEON CONT IN
3 REG 12V IN
4 -12V IN
5 GND
TO TP-12 BOARD
IC104 TDA2795 ID DET
Q104 2SC2785 SWITCHING
IC105 μPC4558C MATRIX
IC106 TDA1028 ANALOG SW
M(A)
R(B)
CN005 (WHT)
1 AUDIO (L) OUT
2 GND
3 GND
4 AUDIO (R) OUT
TO AJ-1 BOARD CN6801 (WHT)
D103 1S1555
IC103
T106 5.74MHz
RV143 100k Cross talk



Note:

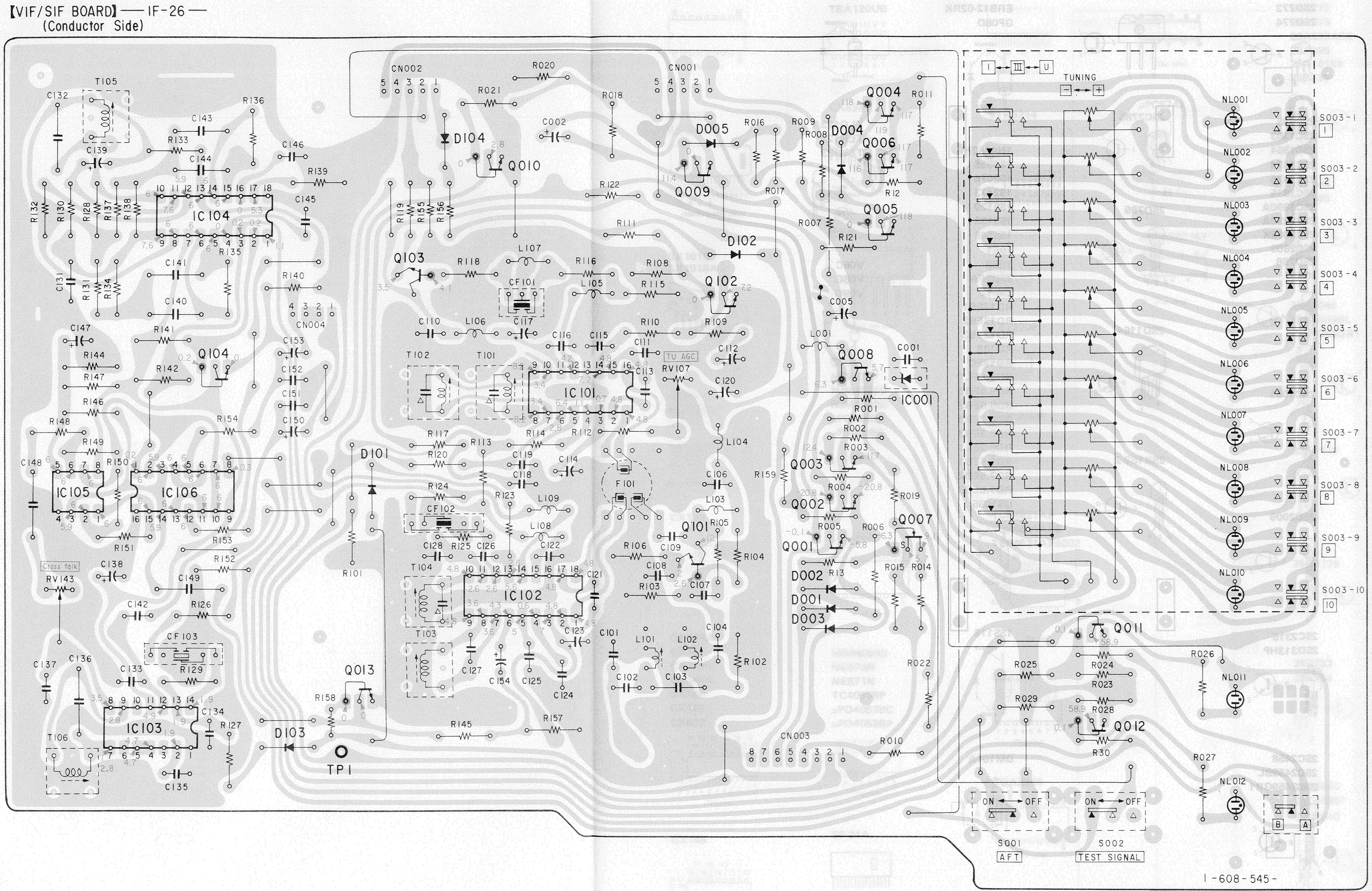
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊟ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

IF-26 (VIF, SIF, AFT, AGC BAND SELECTOR, ID DET, MATRIX) PRINTED WIRING BOARDS

– Ref. No. IF-26 BOARD : 3000 series –

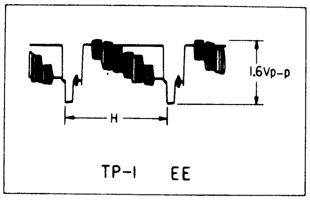


【VIF/SIF BOARD】— IF-26 —
(Conductor Side)

T105
C132
C139
C143
R133
C144
R136
C146
R139
C145
IC104
R132
R130
R128
R137
R138
R135
C141
C131
R131
R134
C140
R140
CN004
C147
R141
Q104
R144
R142
R147
R146
R148
R149
R150
C148
IC105
IC106
R151
R153
R154
C153
C152
C151
C150
Cross talk
RV143
C138
C149
R152
C142
R126
CF103
R129
C137
C136
C133
IC103
C134
R127
T106
C135
D103
TP1
Q013
R158
D101
R101
CN002
R021
R020
D104
Q010
C002
R119
R155
R156
Q103
R118
L107
CF101
R116
L105
C110
L106
C117
C116
C115
T102
T101
IC101
C113
C111
TU AGC
RV107
R117
R113
R120
R114
R112
C119
C118
C114
R124
CF102
R123
L109
L108
C128
R125
C126
C122
T104
IC102
C121
T103
C127
C154
C125
C123
C124
R145
R157
F101
L104
L103
Q101
R105
R106
C109
C108
R104
R103
C107
C101
L101
L102
C104
C102
C103
R102
CN003
R108
R115
Q102
R110
R109
C112
C120
R111
R122
Q009
D102
CN001
R018
D005
R016
R017
R009
R008
D004
Q004
R011
Q006
R12
R007
Q005
R121
C005
L001
Q008
C001
IC001
R001
R002
R003
Q003
R159
C106
Q002
R004
R019
R005
R006
Q007
Q001
D002
D001
D003
R13
R015
R014
R022
R010
I ←→ III ←→ U
TUNING
− ←→ +
NL001
NL002
NL003
NL004
NL005
NL006
NL007
NL008
NL009
NL010
S003-1
S003-2
S003-3
S003-4
S003-5
S003-6
S003-7
S003-8
S003-9
S003-10
Q011
R025
R024
R023
R029
R028
Q012
R30
R026
NL011
R027
NL012
ON ←→ OFF
S001
AFT
S002
TEST SIGNAL
B
A
1-608-545-

IC , Q	D	ADJ(TP,RV)
004		
	104,005,004	
010,009,006		
IC104 005		
	102	
103 102		
104 008		
IC101 IC001		RV107
003 IC105 IC106	101	
002		
007		
101 001		
IC102	002 001 003	RV143
011		
013		
IC103 012	103	TP1

IF-26BOARD

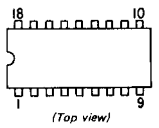


When indicating parts by reference number, please include the board name.

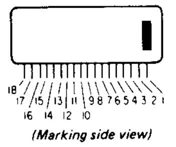
11

3-5. SEMICONDUCTORS

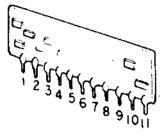
BA5102


18
10
1
9
(Top view)

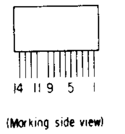
BX1017
BX1017A


18
17 15 13 11 9 8 7 6 5 4 3 2 1
16 14 12 10
(Marking side view)

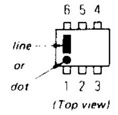
BX1018
BX1018A


1 2 3 4 5 6 7 8 9 10 11

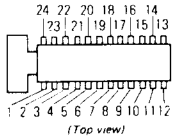
BX1020
BX1020B


14 11 9 5 1
(Marking side view)

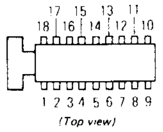
CX130


6 5 4
line
or
dot
1 2 3
(Top view)

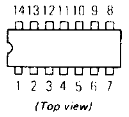
CX134A
CX135
CX136A
CX143A
CX186
CX187
CX832


24 22 20 18 16 14
23 21 19 17 15 13
1 2 3 4 5 6 7 8 9 10 11 12
(Top view)

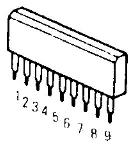
CX145


17 15 13 11
18 16 14 12 10
1 2 3 4 5 6 7 8 9
(Top view)

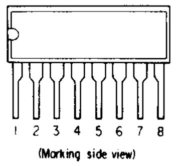
CX150B
TBA120UB


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

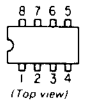
CX894



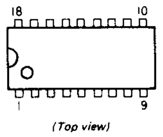
CX7926


1 2 3 4 5 6 7 8
(Marking side view)

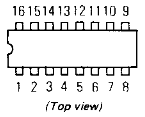
CX7942
M58478P
NJM4558D
NJM4562D
µPC4556C
µPC4558C


8 7 6 5
1 2 3 4
(Top view)

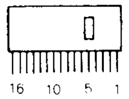
LA7040


18
10
1
9
(Top view)

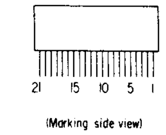
MB84053B
NE570N
NE571N
TC4053BP
µPD4053BC
µPD4053BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

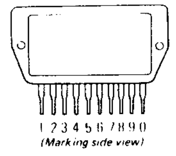
SP-21A



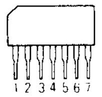
SP22B


21 15 10 5 1
(Marking side view)

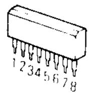
STK5314


1 2 3 4 5 6 7 8 9 10
(Marking side view)

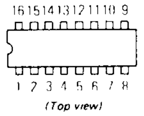
TA7120P



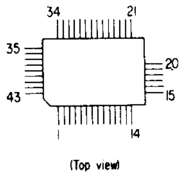
TA7320P



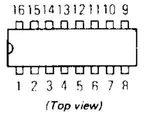
TC4528BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

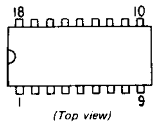
TCP4621AF
TCP4621AF6
TCP4621AF6002


34
21
35
20
43
15
1
14
(Top view)

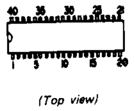
TDA2541


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

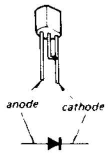
TDA2546


18
10
1
9
(Top view)

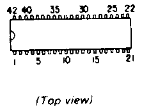
TDA2795


40 35 30 25 21
1 5 10 15 20
(Top view)

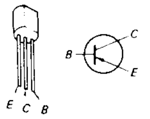
µPC574J


anode
cathode

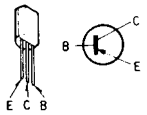
µPD553C167


42 40 35 30 25 22
1 5 10 15 21
(Top view)

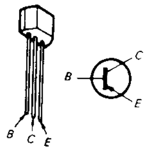
2SA733
2SA772
2SA773
2SA893AE6
2SA925
2SA1016K
2SB739



2SA844
2SB740



2SA1048
2SA1049BL
2SA1049GR1



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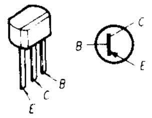

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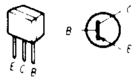

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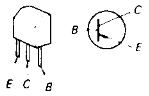
2SB734



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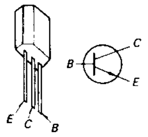
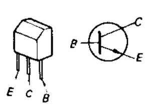
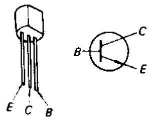
2SC403SP
2SC2840



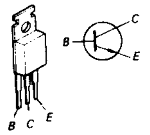
2SC535
2SD773
2SD774



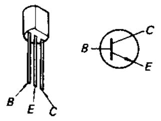
2SC945
2SC1363
2SC1364
2SC1474
2SC1475
2SC1815
2SC1890A
2SC2230A
2SC2362K
2SC2603
2SD788
JC501



2SC1061



2SC2009



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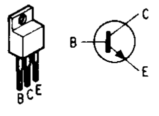
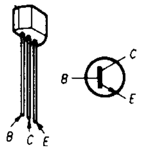
2SD313HP



2SC2458
2SC2459BL
2SC2459GR1



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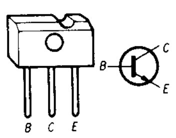

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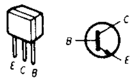

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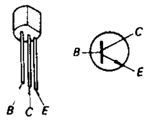

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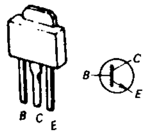
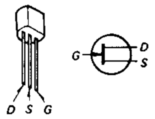


2SK152-2



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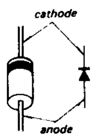
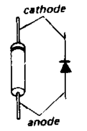
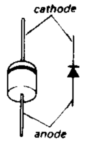
ERB12-02RK
GP08D


cathode
anode

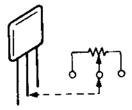
1N4148H
1S1555
1S2076
1S2473
1SS120
1SS133
1SS148
10E1
10E2
30D2FA
EM-1Z
RD13EB1
RD13EB2
RD13EB3
RD18E
RD18EC
RD3.9EL1
RD5.6EB2
RD5.6EB3
RD6.2EB2
RD6.2EB3
RD6.2EL1
RD7.5EB1
RD7.5EB2
RD7.5EB3
US1035


cathode
anode

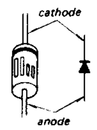
1SS119


cathode
anode

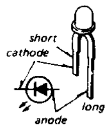
DM101A



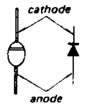
SIB01-06


cathode
anode

TLG123A
TLR123
TLY123


short
cathode
long
anode

V06C
V06G
V09G

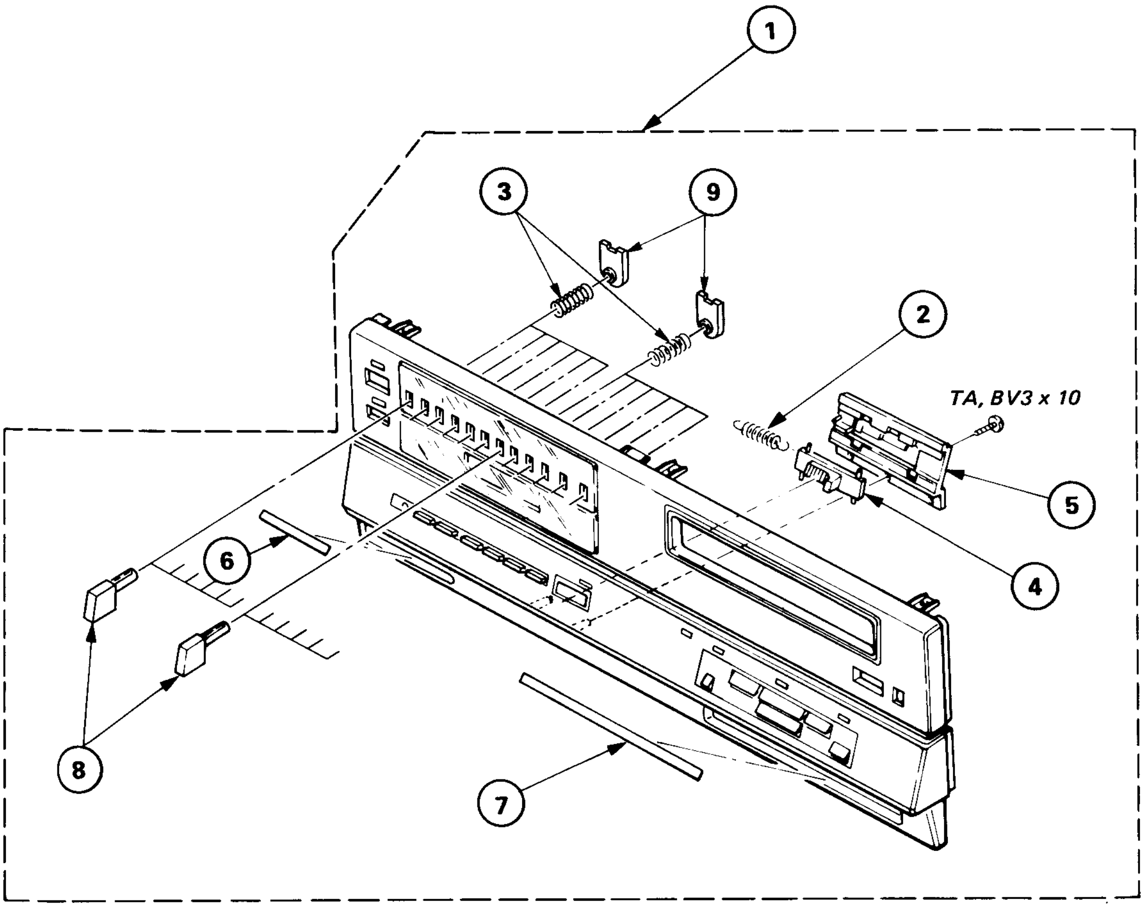

cathode
anode

SECTION 4
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- As to the part numbered with E-, refer to the electrical parts list.
- Items marked " 🌢 " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

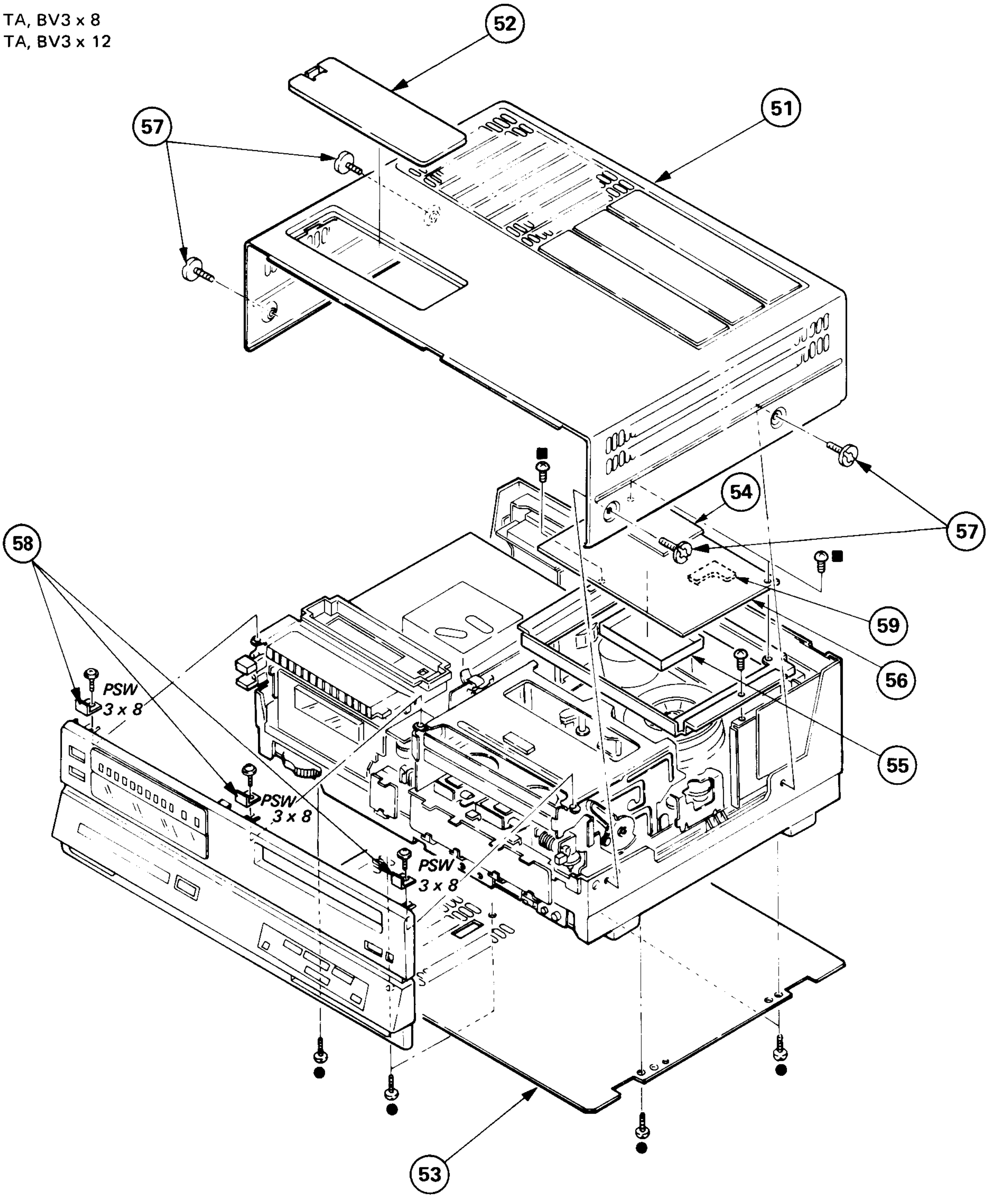
4-1. FRONT ASSEMBLY



No.	Part No.	Description	Remark
1	X-3674-132-0	PANEL (WG) ASSY, FRONT	2—9
2	3-489-099-11	SPRING, TENSION	
3	3-659-609-00	SPRING, COMPRESSION	
4	3-672-460-31	BUTTON, REC	
5	🌢:3-671-111-05	RETAINER, REC BUTTON	
6	3-674-104-11	LABEL (PAL), TRACK CONTROL	
7	3-677-815-11	LABEL (ES), INPUT	
8	3-671-117-21	BUTTON, CHANNEL	
9	3-671-125-00	RETAINER, SPRING	

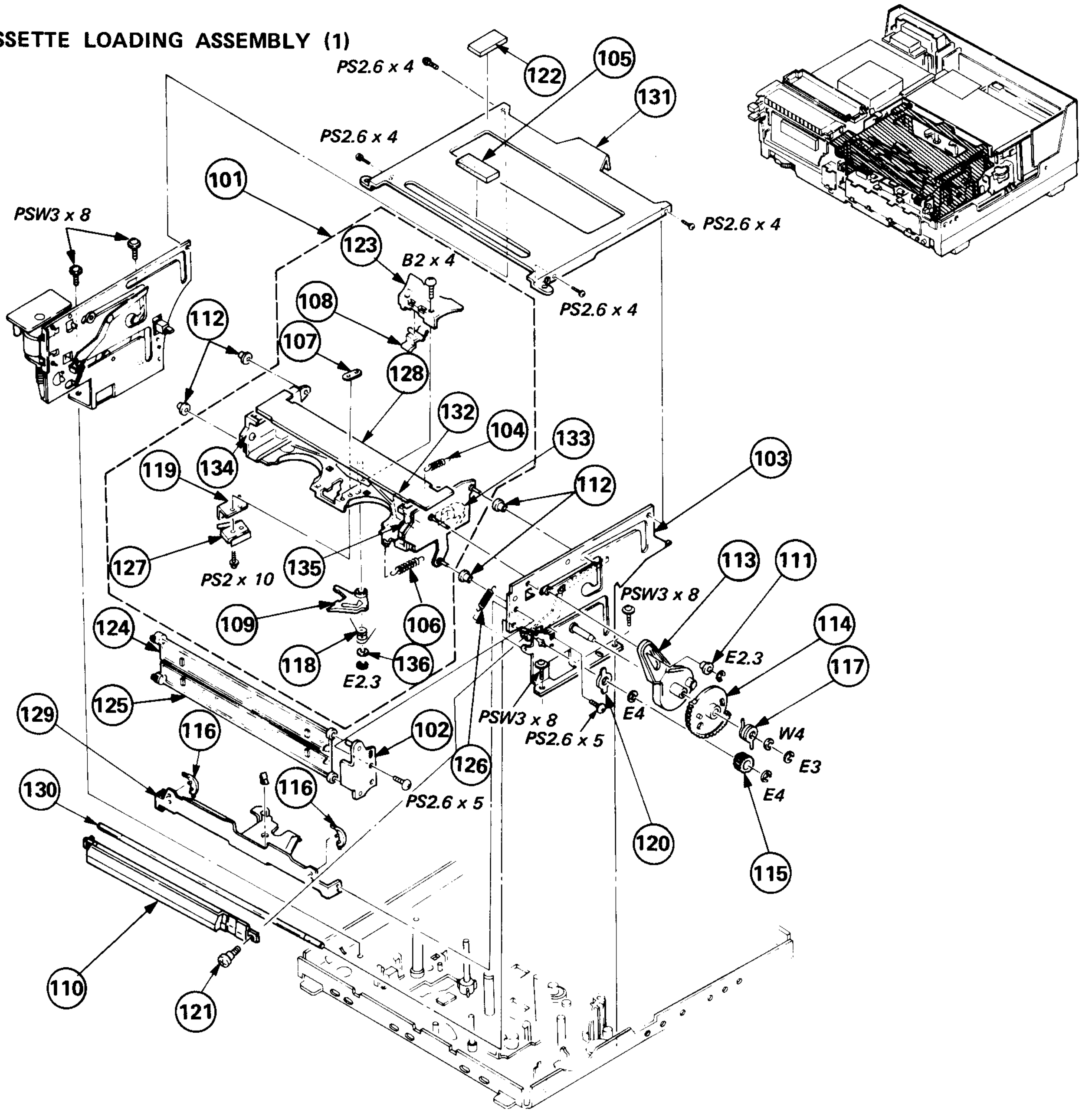
4-2. CABINET ASSEMBLY

■ : TA, BV3 x 8
● : TA, BV3 x 12


52
51
57
57
54
57
■
■
58
PSW 3 x 8
PSW 3 x 8
PSW 3 x 8
59
56
55
●
●
●
●
53

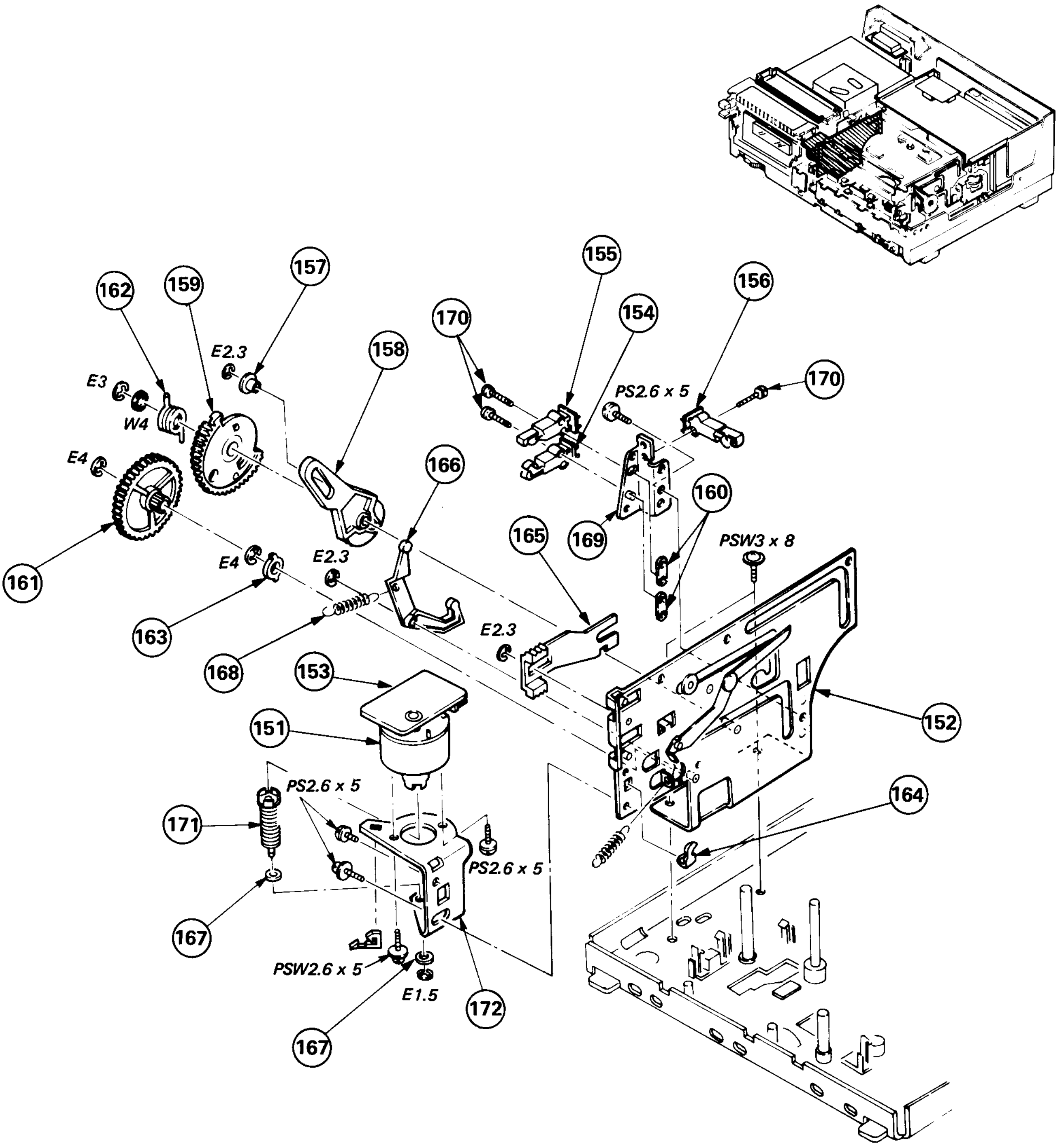
No.	Part No.	Description	Remark
51	3-671-222-51	CASE	
52	X-3674-128-0	LID (ES) ASSY	
53	♠:3-671-210-00	PLATE, BOTTOM	
54	♠:X-3674-133-0	CASE ASSY, SHIELD, AD	
55	♠:3-677-803-00	LID, SHIELD CASE, AD	
56	♠:A-6728-572-A	AD-7 BOARD, COMPLETE	54
57	4-847-802-11	SCREW, CASE STOPPER	
58	♠:3-671-276-00	WASHER, TYPE L	
59	♠:1-609-252-00	MU-1 BOARD	

4-3. CASSETTE LOADING ASSEMBLY (1)


PS2.6 x 4
122
105
131
PS2.6 x 4
101
PSW3 x 8
PS2.6 x 4
123
B2 x 4
PS2.6 x 4
108
112
107
128
132
104
133
103
119
134
112
127
PS2 x 10
135
106
PSW3 x 8
113
111
109
118
136
E2.3
124
E2.3
114
117
125
PSW3 x 8
PS2.6 x 5
E4
W4
E3
129
116
102
126
E4
130
116
PS2.6 x 5
120
115
110
121

No.	Part No.	Description	Remark
101	A-6751-125-B	BASE BLOCK ASSY, CASSETTE	104,106-109 118,119,123 128,132-136
102	♠:X-3671-016-0	PLATE ASSY, FULCRUM, DOOR	
103	♠:X-3671-032-0	PLATE ASSY, SIDE, RIGHT	126
104	3-542-481-00	SPRING, TENSION	
105	9-911-815-02	CUSHION	
106	3-530-249-XX	SPRING, TENSION	
107	♠:3-646-476-00	NUT, PLATE	
108	♠:3-671-008-00	ARM, LOCK RELEASE	
109	3-671-009-03	PLATE, LOCK	
110	3-671-015-21	DOOR, INNER	
111	♠:3-671-016-00	BUSHING, MOVE ARM	
112	3-671-018-00	ROLLER (B)	
113	♠:3-671-019-00	ARM, MOVE	
114	3-671-021-00	GEAR, MOVE, RIGHT	
115	3-671-026-00	WHEEL, RIGHT	
116	♠:3-671-036-00	CHIP, CASSETTE GUIDE	
117	3-671-040-00	SPRING	
118	3-671-041-00	SPRING	
119	♠:3-671-132-00	COVER, SWITCH, MICRO	
120	♠:3-671-134-00	BEARING	
121	3-671-148-00	SCREW, INNER DOOR	
122	4-855-631-01	RUBBER (B), ABSORBENT	
123	♠:3-671-155-03	COVER, FULCRUM	
124	3-671-164-00	DOOR, UPPER	
125	3-671-165-00	DOOR, LOWER	
126	3-491-240-00	SPRING, TENSION	
127	1-552-664-00	SWITCH, MICRO	
128	♠:3-671-038-00	PLATE, TOP, BASE	
129	♠:3-671-158-00	JOINT	
130	♠:3-671-028-00	SHAFT, WHEEL	
131	♠:3-671-156-00	PLATE, TOP	
132	♠:X-3671-017-0	RETAINER ASSY, CASSETTE	
133	♠:3-671-133-00	ARM, SAFETY	
134	♠:3-671-161-00	GUIDE (L), CASSETTE	
135	♠:3-671-162-00	GUIDE (R), CASSETTE	
136	4-836-939-00	WASHER, 3.1	

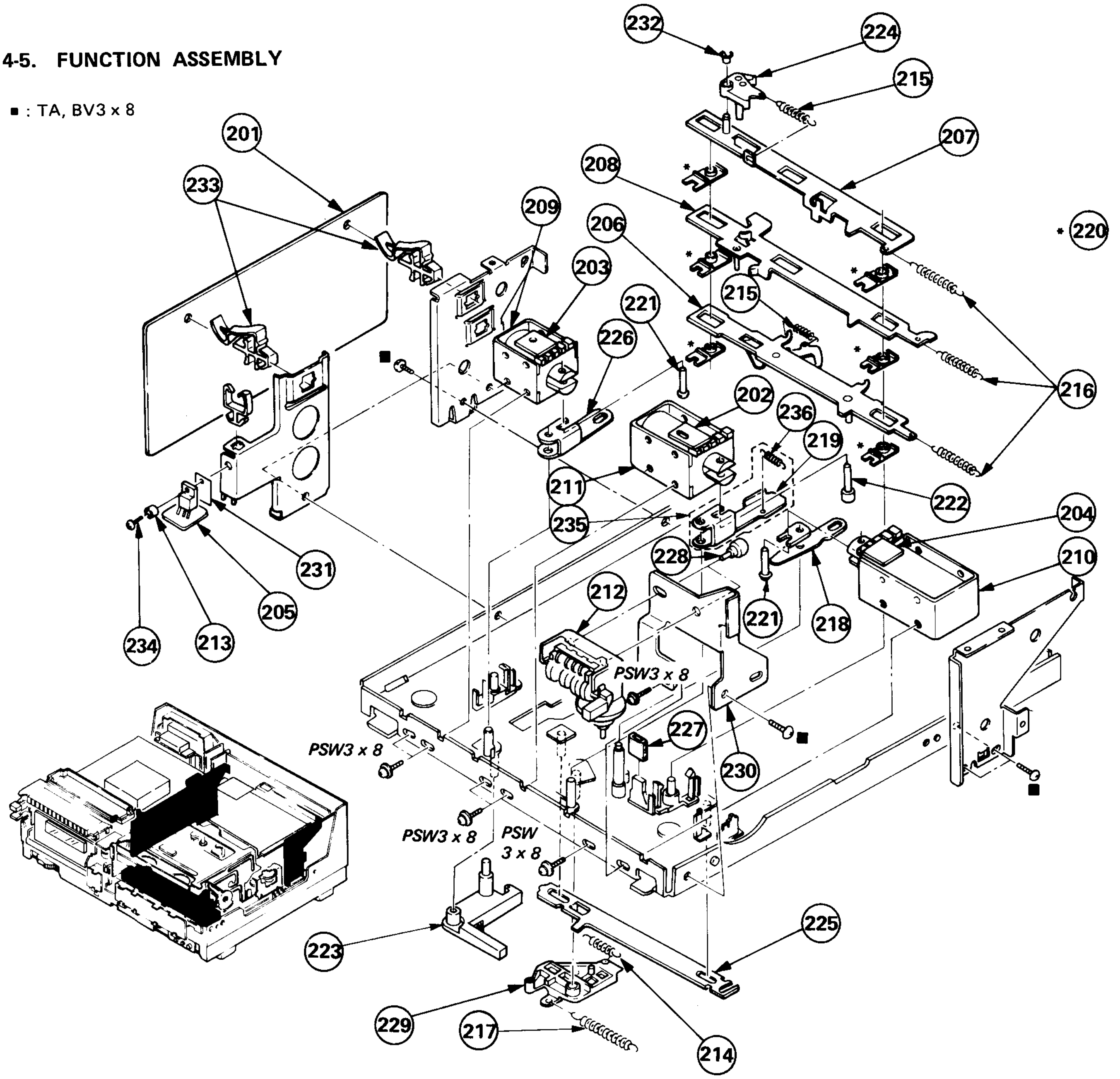
4-4. CASSETTE LOADING ASSEMBLY (2)


162
159
157
E2.3
158
E3
W4
E4
161
155
170
154
156
PS2.6 x 5
170
166
160
165
169
PSW3 x 8
E4
E2.3
163
168
153
E2.3
151
152
164
PS2.6 x 5
171
PS2.6 x 5
167
PSW2.6 x 5
E1.5
172
167

No.	Part No.	Description	Remark
151	A-6751-131-A	MOTOR ASSY, F.L.	
152	♠:X-3671-031-0	PLATE ASSY, SIDE, LEFT	
153	♠:1-605-704-00	TT-5 BOARD	
154	♠:1-605-705-00	TT-2 BOARD	
155	♠:1-605-706-00	TT-3 BOARD	
156	♠:1-605-707-00	TT-4 BOARD	
157	♠:3-671-016-00	BUSHING, MOVE ARM	
158	♠:3-671-019-00	ARM, MOVE	
159	3-671-020-00	GEAR, MOVE, LEFT	
160	♠:3-671-023-00	PLATE, NUT	
161	3-671-027-00	WHEEL, WORM	
162	3-671-040-00	SPRING	
163	♠:3-671-134-00	BEARING	
164	♠:3-671-150-11	CLAMP	
165	3-671-157-00	RACK, DOOR	
166	♠:3-671-035-00	ARM, SWITCHING	
167	3-701-437-11	WASHER	
168	3-672-430-00	SPRING, TENSION	
169	♠:3-671-024-00	BRACKET, SWITCH	
170	3-672-442-00	SCREW (+PSW) (2X10)	
171	♠:X-3671-018-0	WORM ASSY	
172	♠:3-671-001-03	BRACKET, F.L. MOTOR	

4-5. FUNCTION ASSEMBLY

■ : TA, BV3 x 8

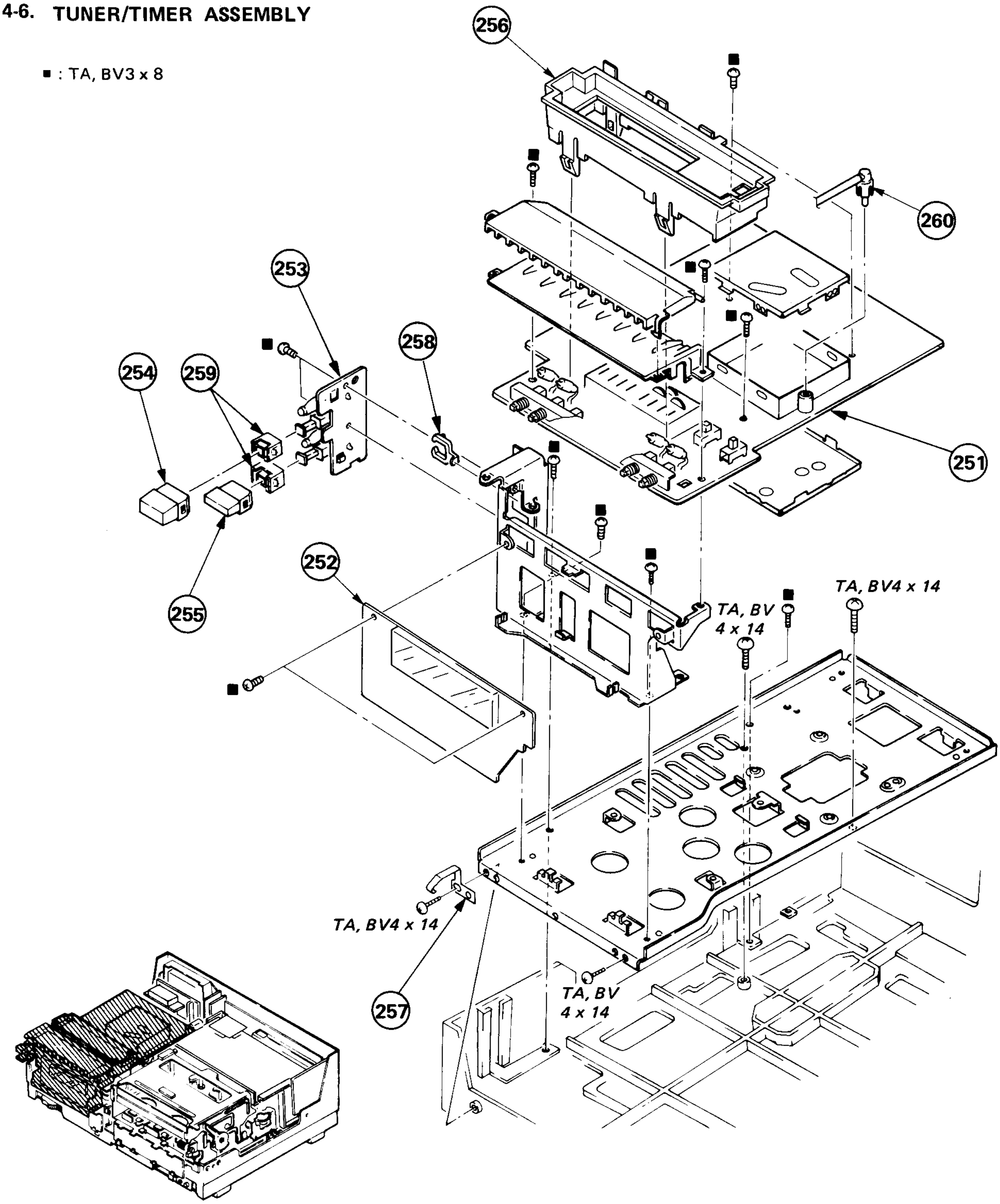

232
224
215
201
207
233
208
209
206
220
203
215
221
226
216
202
236
219
211
222
235
204
228
210
231
212
221
218
205
234
213
PSW3 x 8
227
PSW3 x 8
230
PSW3 x 8
PSW
3 x 8
225
223
229
217
214

No.	Part No.	Description	Remark
201	♦:A-6728-305-A	DR-1 BOARD, COMPLETE	
202	♦:1-605-698-00	DR-5 BOARD	
203	♦:1-605-699-00	DR-6 BOARD	
204	♦:1-605-700-00	DR-7 BOARD	
205	♦:1-605-703-00	DR-10 BOARD	
206	♦:X-3671-010-0	PLATE ASSY, SLIDE, FE	
207	♦:X-3671-011-0	PLATE ASSY, SLIDE, RO	
208	♦:X-3671-012-0	PLATE ASSY, SLIDE, BS	216
209	⚠1-454-292-11	SOLENOID, PLUNGER (BS)	
210	⚠1-454-293-11	SOLENOID, PLUNGER (FE)	
211	⚠1-454-294-11	SOLENOID, PLUNGER (FF)	
212	1-548-559-00	COUNTER, TAPE	
213	2-832-007-00	BUSHING (K), INSULATING	
214	3-533-223-11	SPRING, TENSION	
215	3-642-490-00	SPRING, TENSION	
216	3-642-491-00	SPRING, TENSION	
217	3-643-345-00	SPRING, TENSION (S)	
218	♦:3-671-052-00	LEVER, FE	
219	3-671-053-00	LEVER, FF	
220	3-671-056-00	SPACER, SLIDE PLATE	
221	♦:3-671-057-00	PIN, SOLENOID	
222	♦:3-671-057-11	PIN, SOLENOID	
223	♦:3-671-079-00	LEVER, EJECT	
224	♦:3-671-082-00	ARM, RO SELECT	
225	♦:3-671-083-00	PLATE, SLIDE, EJECT	
226	♦:3-671-088-00	LEVER, BS	
227	3-671-093-00	BUSHING, MUFFLE	
228	3-671-135-00	SCREW, STEP	
229	♦:3-671-175-00	LEVER, RELAY	
230	♦:3-671-188-00	BRACKET, COUNTER	
231	3-701-754-00	PLATE, INSULATING	
232	3-703-074-00	CAP 3, SHAFT	
233	♦:3-703-141-00	HOLDER, PCB	
234	3-669-607-21	+PSW (SMALL ROUND) (2.6)	
235	♦:A-6749-074-A	LEVER ASSY, FF	219,236
236	3-646-214-00	SPRING	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

4-6. TUNER/TIMER ASSEMBLY

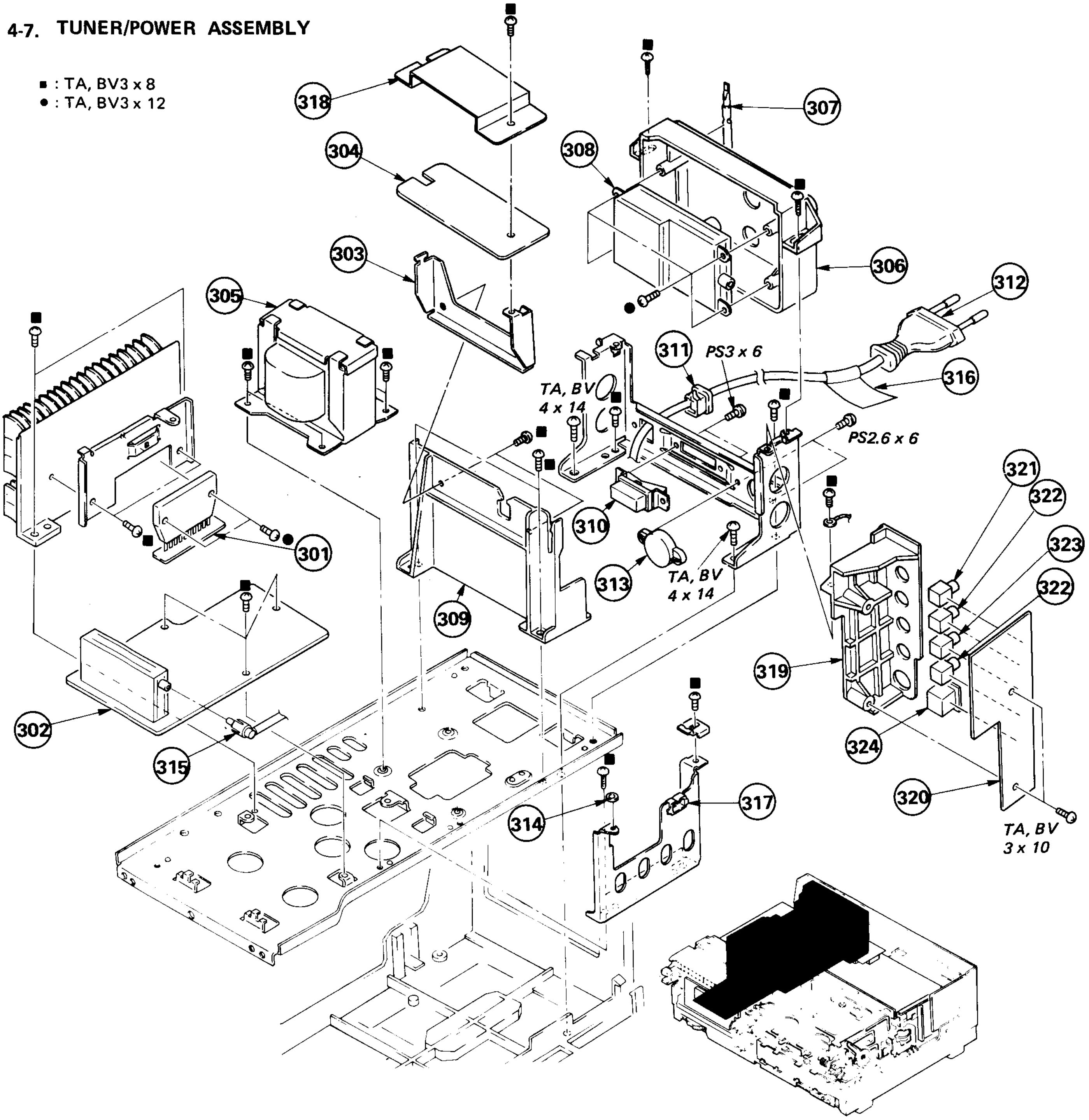
■ : TA, BV3 x 8


256
■
■
260
■
253
■
258
■
254
259
251
■
■
252
■
TA, BV
4 x 14
■
TA, BV4 x 14
255
■
TA, BV4 x 14
257
TA, BV
4 x 14

No.	Part No.	Description	Remark
251	💧:A-6721-148-A	IF-26 BOARD, COMPLETE	
252	💧:1-608-944-00	TP-13 BOARD	
253	💧:1-606-945-00	TP-14 BOARD	
254	3-671-115-00	BUTTON, POWER SWITCH	
255	3-671-116-00	BUTTON, SWITCH, TIMER	
256	3-674-197-00	COVER, PRESET	
257	💧:3-672-456-00	SPRING (A), LEAF	
258	💧:4-310-385-00	HOLDER, WIRE	
259	4-864-307-00	RING	
260	💧:1-555-400-00	CABLE, PIN	

4-7. TUNER/POWER ASSEMBLY

■ : TA, BV3 x 8
● : TA, BV3 x 12

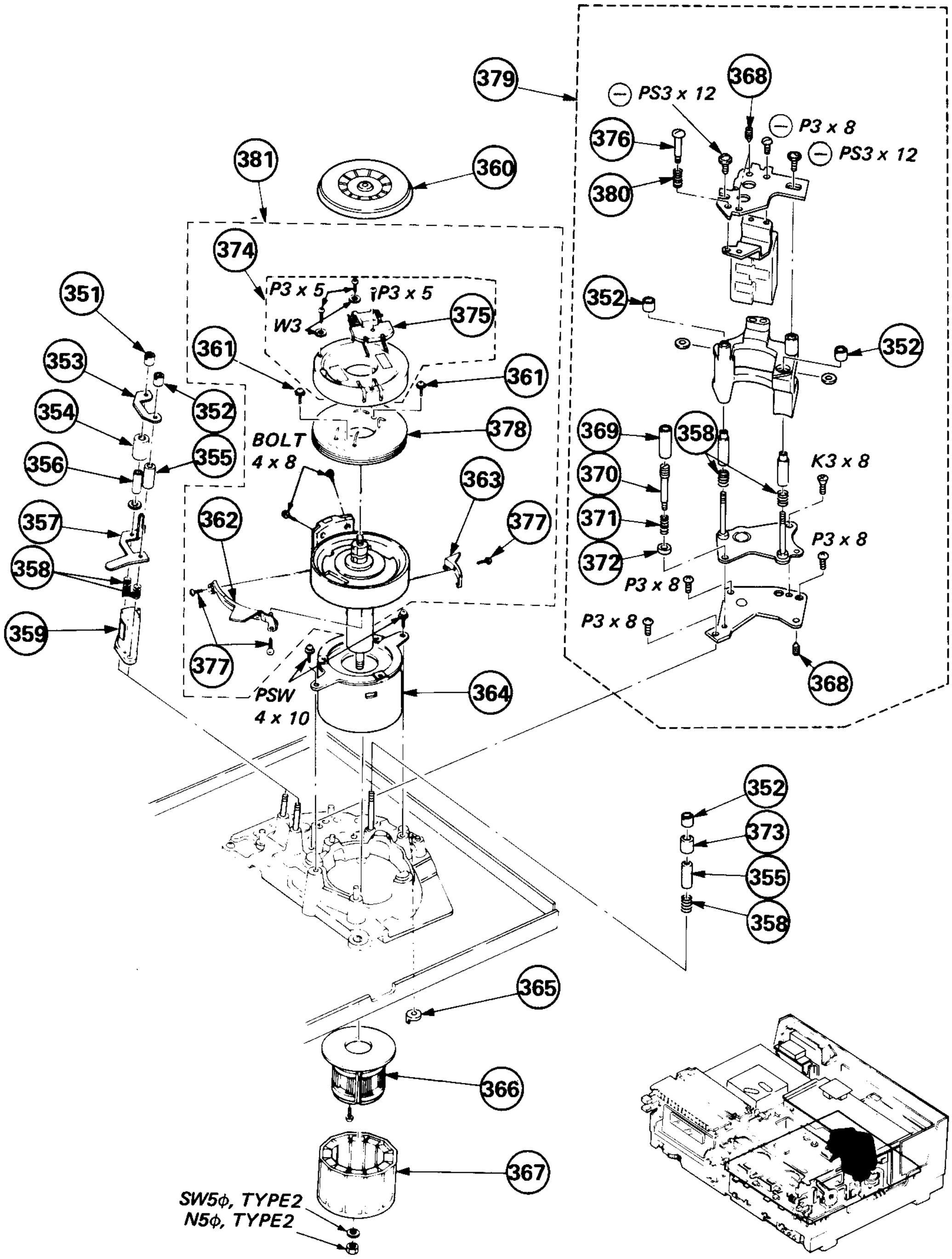


301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
322
324
PS3 x 6
TA, BV 4 x 14
PS2.6 x 6
TA, BV 4 x 14
TA, BV 3 x 10

No.	Part No.	Description	Remark
301	♠:1-606-946-00	TP-16 BOARD	
302	♠:A-6728-568-A	TP-12 (ES) BOARD, COMPLETE	
303	♠:3-674-181-00	BRACKET, FUSE	
304	♠:1-608-544-00	LF-23 BOARD	
305	⚠1-447-443-00	TRANSFORMER, PWOER	
306	3-674-124-00	PANEL	
307	4-316-238-00	SCREW DRIVER, CONTROL	
308	⚠1-464-234-00	MODULATOR, RF BOOSTER(RFU-807)	
309	♠:3-674-125-02	PLATE, SHIELD	
310	⚠1-554-055-00	SWITCH, SEESAW (AC POWER)	
311	⚠3-703-244-00	BUSHING, CORD	
312	⚠1-534-817-XX	CORD, POWER	
313	⚠1-554-038-00	SWITCH, POWER VOLTAGE CHANGE	
314	4-308-030-00	WASHER	
315	♠:1-555-716-41	CABLE, PIN	
316	♠:3-674-146-00	LABEL, CAUTION, AC CORD	
317	♠:4-310-385-00	HOLDER, WIRE	
318	♠:3-677-814-00	INSULATOR	
319	3-677-816-00	PANEL, JACK	
320	♠:1-608-541-00	AJ-1 BOARD	
321	♠:1-507-588-91	JACK, PIN 1P	
322	♠:1-507-588-61	JACK, PIN (1P)	
323	♠:1-507-588-51	JACK, PIN (1P)	
324	♠:1-562-121-00	CONNECTOR, DIN 6P	

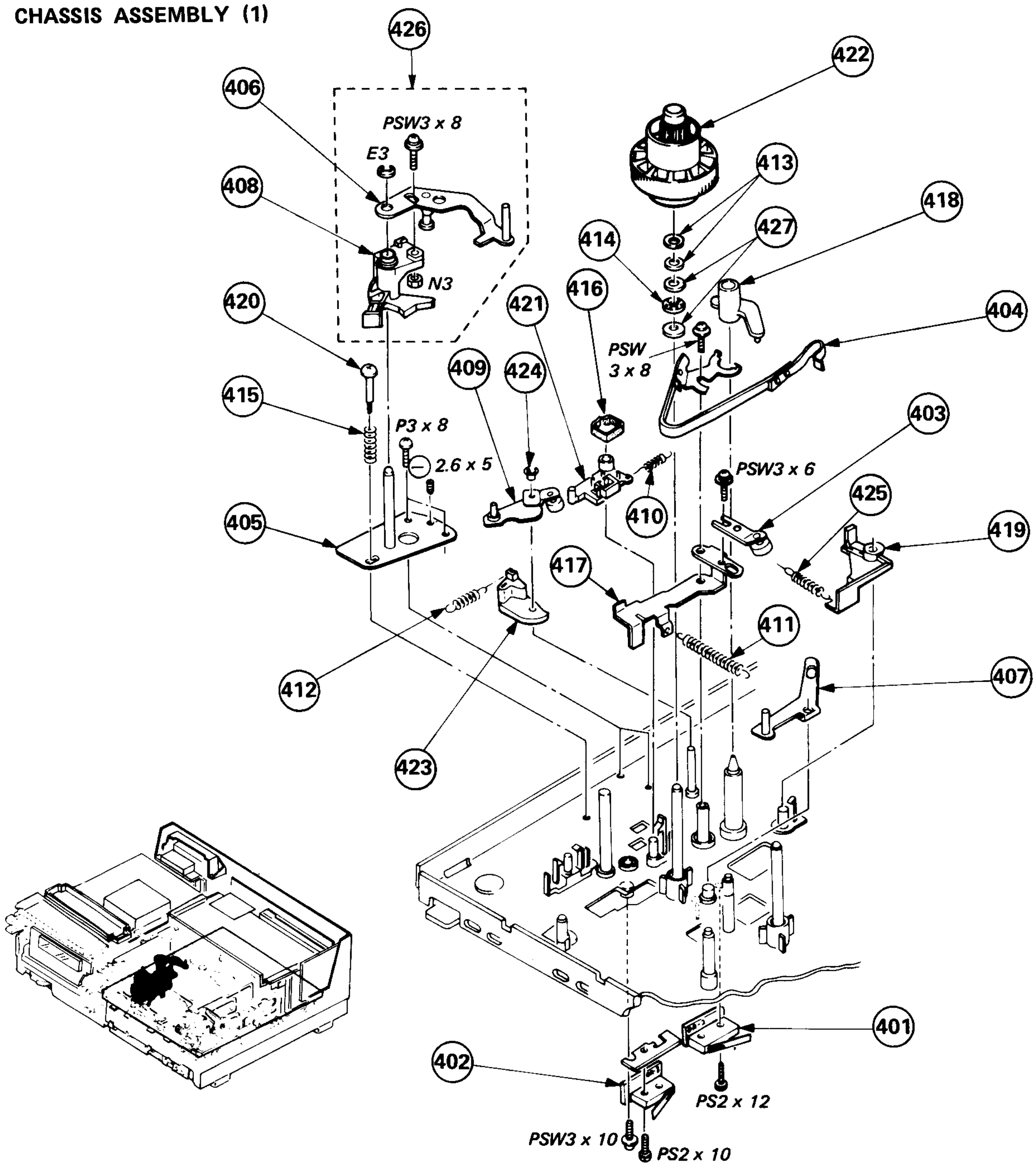
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

4-8. DRUM ASSEMBLY


379
368
PS3 x 12
P3 x 8
PS3 x 12
376
380
381
360
374
P3 x 5
P3 x 5
W3
375
351
353
361
361
352
352
352
354
BOLT
4 x 8
378
369
358
K3 x 8
356
355
363
370
362
377
371
P3 x 8
357
372
P3 x 8
358
P3 x 8
359
377
368
PSW
4 x 10
364
352
373
355
358
365
366
367
SW5Φ, TYPE2
N5Φ, TYPE2

No.	Part No.	Description	Remark
351	3-659-345-00	NUT, GUIDE, NO.1	
352	3-660-997-00	NUT (N), GUIDE ADJUSTMENT	
353	3-659-344-00	PLATE, GUIDE, ENTRANCE	
354	X-3659-304-0	ROLLER ASSY, GUIDE, NO.1	
355	3-659-342-00	SLEEVE, GUIDE, NO.2	
356	3-659-341-00	SLEEVE, GUIDE, NO.1	
357	♠:3-659-343-00	BRACKET, TAPE, ENTRANCE	
358	3-659-324-00	SPRING, COMPRESSION	
359	8-825-687-31	HEAD, FULL ERASE (EF182-21)	
360	3-658-122-00	FAN	
361	3-652-751-00	SCREW (+ P EXT TOOTH W S 3X8)	
362	3-652-741-00	BRACKET (A), TAPE	
363	3-652-728-00	BRACKET (B), TAPE	
364	♠:X-3652-713-0	CASE ASSY, SHIELD	
365	3-610-939-50	NUT, TAPE GUIDE	
366	♠:X-2619-412-0	STATOR ASSY	
367	X-2619-402-0	ROTOR ASSY	
368	3-659-332-00	SCREW	
369	3-659-752-00	NUT, A.C.E ROCK	
370	3-659-751-00	SCREW, A.C.E ADJUSTMENT	
371	3-659-750-00	SPRING, COMPRESSION	
372	♠:3-671-121-00	SPACER, SCREW, ADJUSTMENT	
373	3-659-716-00	FLANGE, GUIDE	
374	A-6760-050-A	DRUM SUB ASSY, UPPER	375
375	A-6761-013-B	SPRING ASSY	
376	3-659-333-00	SCREW (3X17), STEP	
377	3-662-910-00	SCREW (IRIS) +P 3X8	
378	A-6762-038-A	DRUM ASSY, ROTARY (DSR-08)	
379	A-6761-052-A	ACE ASSY	352,358,368-372,376,380
380	3-645-513-00	SPRING, HEAD DECK ADJUSTMENT	
381	A-6050-057-A	DRUM ASSY (DSH-08A-R)	361,362,363,378

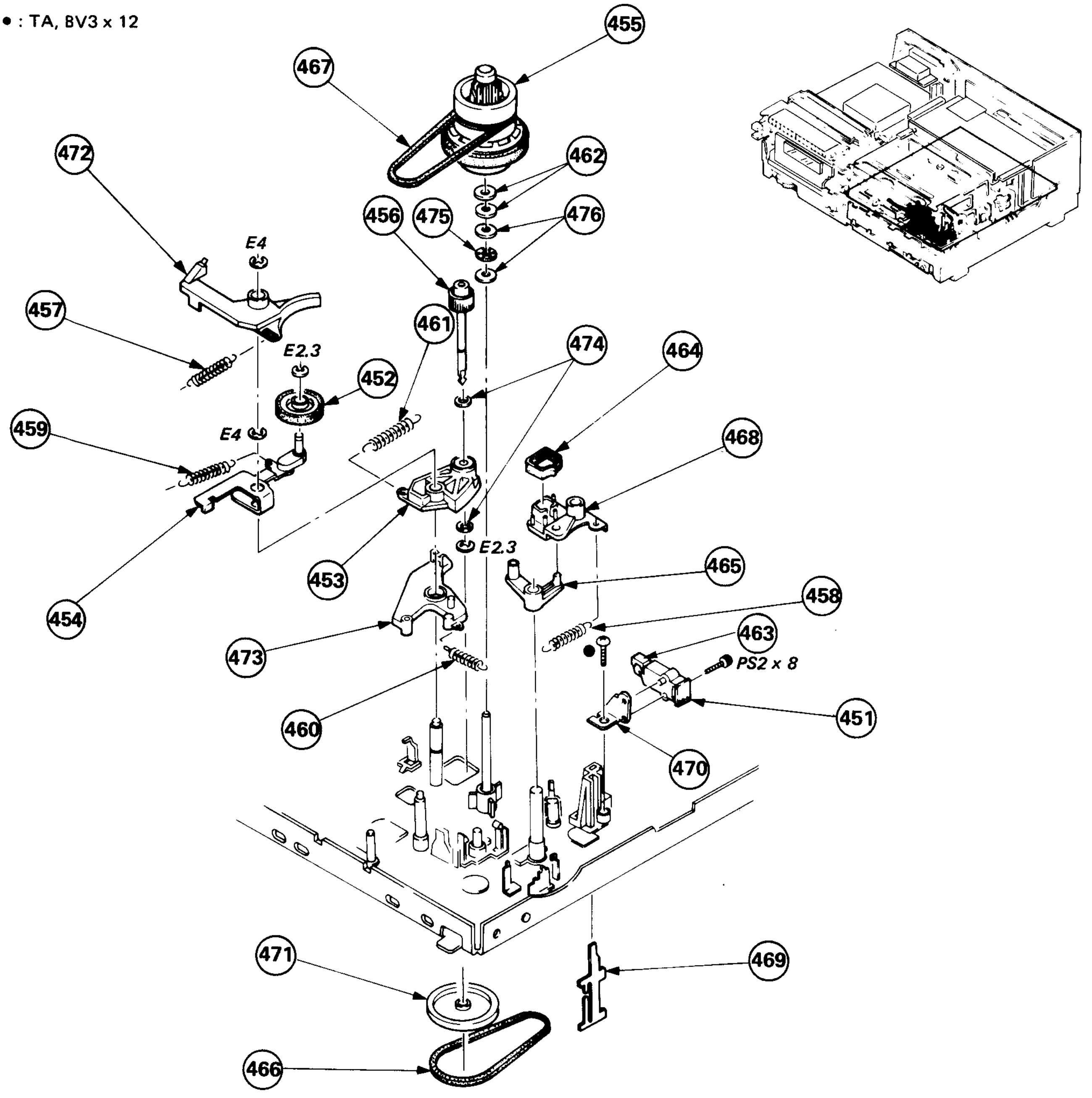
4-9. CHASSIS ASSEMBLY (1)


426
422
406
PSW3 x 8
E3
413
408
418
427
414
N3
416
421
420
404
PSW
3 x 8
409
424
415
P3 x 8
2.6 x 5
403
PSW3 x 6
425
405
410
419
417
411
412
407
423
401
402
PS2 x 12
PSW3 x 10
PS2 x 10

No.	Part No.	Description	Remark
401	♠:1-605-695-00	DR-2 BOARD	
402	♠:1-605-696-00	DR-3 BOARD	
403	X-3659-323-0	PLATE ASSY, ADJUSTMENT, R	
404	X-3659-328-2	BAND ASSY, TENSION REGULATOR	
405	♠:X-3671-006-0	PLATE ASSY, ADJUSTMENT	
406	♠:X-3671-007-0	PLATE ASSY, ARM	
407	♠:X-3671-021-0	LINK ASSY, FWD	
408	♠:X-3671-038-0	ARM ASSY, TENSION REGULATOR	
409	♠:X-3671-042-0	LEVER ASSY, PUSH-OUT	
410	3-534-217-00	SPRING, TENSION	
411	3-536-249-00	SPRING, TENSION	
412	3-646-138-00	SPRING	
413	3-646-184-00	SPACER	
414	3-646-185-00	BEARING	
415	3-652-413-00	SPRING, COMPRESSION	
416	3-659-446-00	LINING, BRAKE	
417	♠:3-671-062-00	ARM, RING	
418	♠:3-671-091-02	CAM, FWD	
419	♠:3-671-101-00	LEVER (E), SWITCH	
420	3-671-143-00	SCREW, ADJUSTMENT	
421	3-671-149-00	BRAKE, S	
422	X-3671-054-0	TABLE ASSY, S REEL	
423	♠:3-671-184-02	LINK, TENSION, REGULATOR	
424	3-703-074-00	CAP 3, SHAFT	
425	4-847-561-00	SPRING, TENSION	
426	♠:A-6742-040-A	UNIT SUB ASSY	406,408
427	3-646-184-11	SPACER	

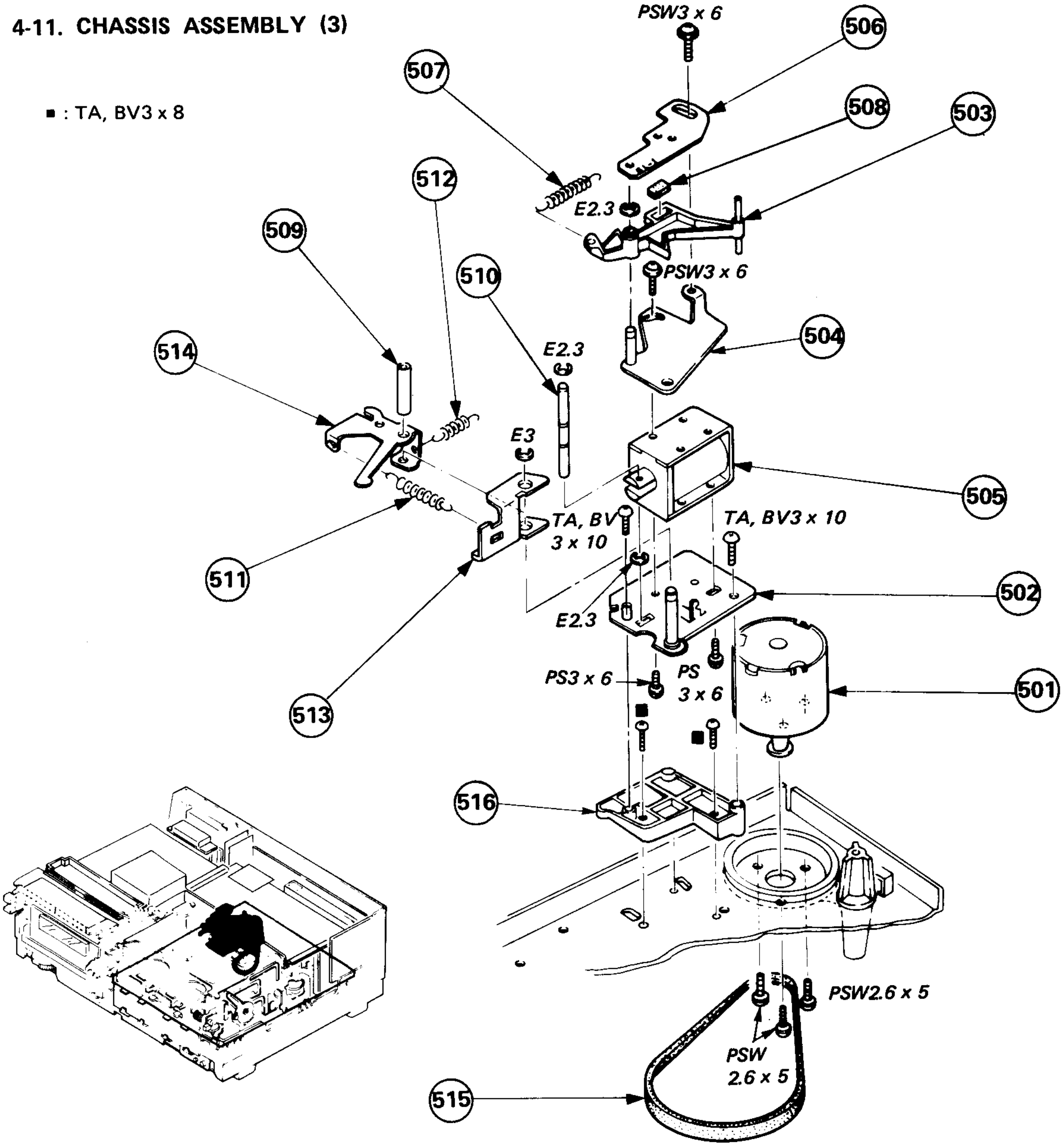
4-10. CHASSIS ASSEMBLY (2)

● : TA, BV3 x 12


455
467
472
462
456
475
476
E4
457
461
E2.3
452
474
464
459
E4
468
453
E2.3
465
454
458
473
463
PS2 x 8
451
460
470
471
469
466

No.	Part No.	Description	Remark
451	♠:1-605-697-00	DR-4 BOARD	
452	X-3653-315-0	IDLER ASSY	
453	♠:X-3671-002-2	ARM ASSY, FF	
454	♠:X-3671-003-0	ARM ASSY, REW	
455	X-3671-053-0	TABLE ASSY, T REEL	
456	X-3671-055-0	PULLEY (A) ASSY, FF	
457	3-672-461-00	SPRING, TENSION	
458	3-534-217-00	SPRING, TENSION	
459	3-567-110-00	SPRING, TENSION	
460	3-642-633-00	SPRING, TENSION	
461	3-645-168-00	SPRING, TENSION	
462	3-646-184-00	SPACER	
463	1-553-847-00	SWITCH, LEVER	
464	3-659-446-00	LINING, BRAKE	
465	♠:3-671-055-00	ARM, TB	
466	3-671-077-00	BELT, FF	
467	3-671-094-00	BELT, COUNTER	
468	3-671-102-00	BRAKE, T	
469	♠:3-671-107-00	PLATE, ERASING PROTECTION	
470	♠:3-671-108-00	BRACKET, SWITCH	
471	3-671-170-00	PULLEY (LARGE), FF	
472	♠:3-671-173-00	ARM, BRAKE, SOFT	
473	♠:3-671-179-00	ARM, LIMITER, FF	
474	3-701-439-21	WASHER	
475	3-646-185-00	BEARING	
476	3-646-184-11	SPACER	

4-11. CHASSIS ASSEMBLY (3)

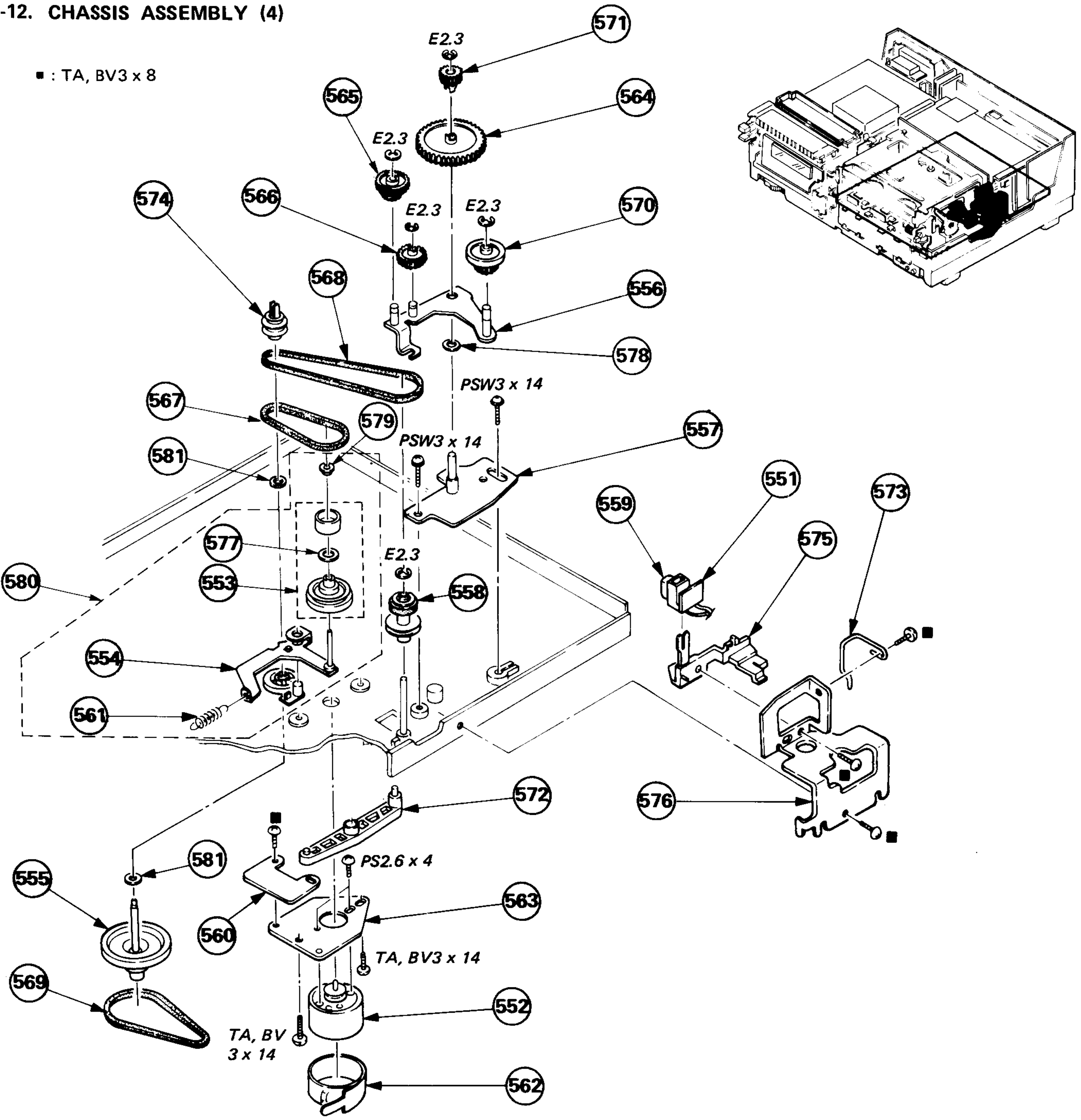

■ : TA, BV3 x 8
PSW3 x 6
506
507
508
503
E2.3
512
509
510
PSW3 x 6
504
E2.3
514
E3
505
TA, BV 3 x 10
TA, BV3 x 10
511
502
E2.3
PS3 x 6
PS 3 x 6
501
513
516
PSW2.6 x 5
PSW 2.6 x 5
515

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
501	8-835-070-11	MOTOR, DC		509	♠:3-658-194-00	SPACER (4-25)	
502	♠:X-3671-008-0	BASE ASSY, SOLENOID, PINCH		510	♠:3-659-780-00	PIN, LEVER, PINCH PRESS	
503	X-3659-310-4	ARM ASSY, DETECTION, SLACK		511	3-659-784-00	SPRING, TENSION	
504	X-3671-046-5	BASE ASSY, SLACK DETECTION		512	3-659-785-00	SPRING, TENSION	
505	⚠1-454-295-00	SOLENOID, PLUNGER (PINCH)		513	♠:3-671-063-00	LEVER (A), PRESS, PINCH	
506	♠:1-605-691-00	SL-1 BOARD		514	♠:3-671-064-00	LEVER (B), PRESS, PINCH	
507	3-642-490-00	SPRING, TENSION		515	3-671-253-00	BELT, CAPSTAN	
508	3-646-571-00	MAGNET		516	♠:3-671-186-00	BASE, SOLENOID, PINCH	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

4-12. CHASSIS ASSEMBLY (4)

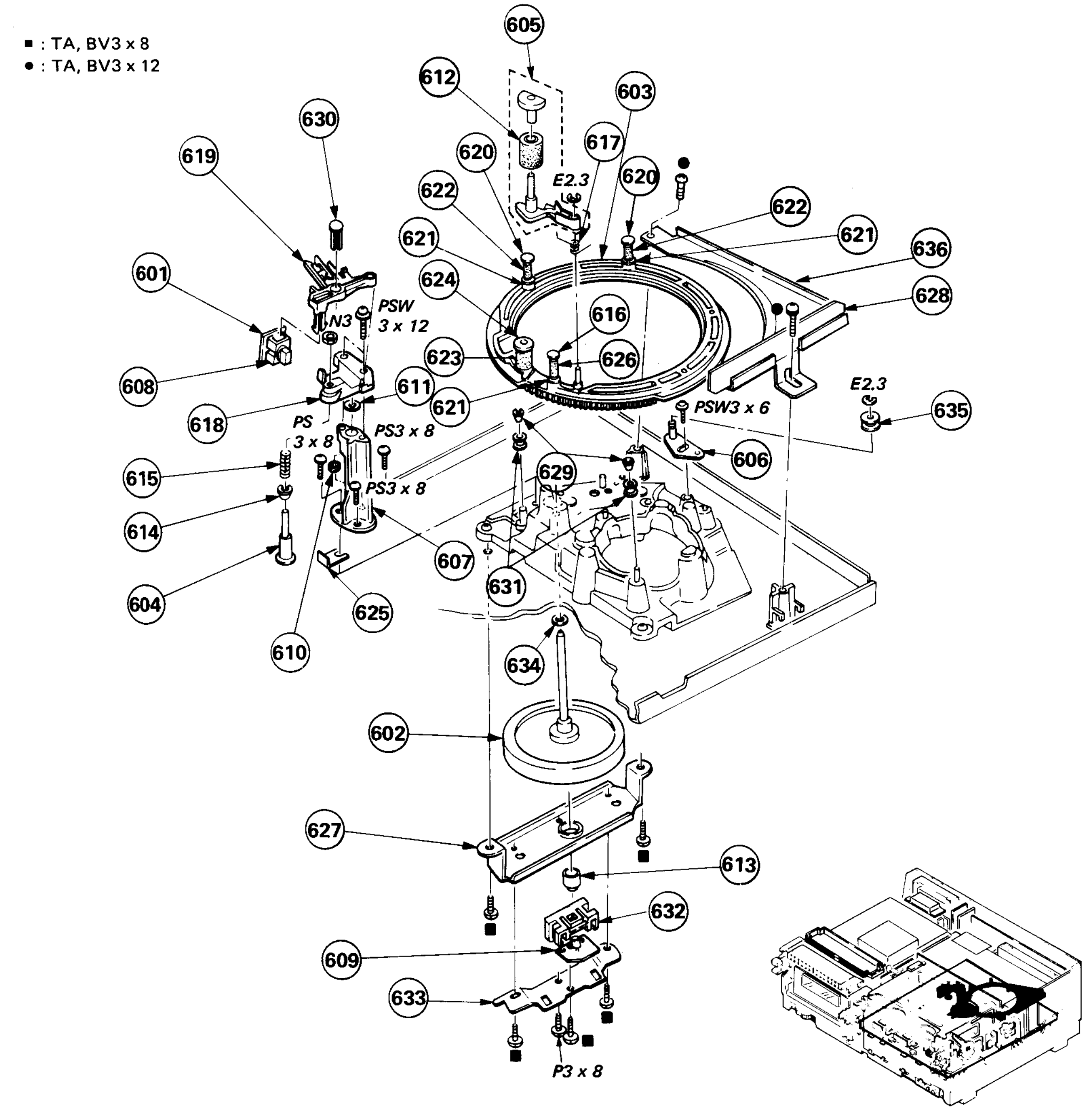
■ : TA, BV3 x 8


571
E2.3
565
564
E2.3
574
566
E2.3
E2.3
570
568
556
578
PSW3 x 14
567
579
PSW3 x 14
557
581
551
559
573
577
E2.3
575
580
553
558
554
561
572
576
■
581
PS2.6 x 4
555
563
560
TA, BV3 x 14
569
552
TA, BV
3 x 14
562
■

No.	Part No.	Description	Remark
551	♠:1-605-702-00	DR-9 BOARD	
552	A-6737-101-A	MOTOR ASSY, REEL	
553	A-6740-072-A	RIMITTER ASSY, FWD	577
554	♠:X-3671-001-0	ARM ASSY, FWD	
555	X-3671-005-0	PULLEY (LARGE) ASSY, RELAY	
556	♠:X-3671-013-0	LEVER ASSY, GEAR	
557	♠:X-3671-014-0	BASE ASSY, GEAR	
558	X-3671-015-0	PULLEY ASSY, LOADING	
559	1-543-145-00	HEAD, SENSING	
560	♠:1-605-692-00	FL-2 BOARD	
561	3-642-483-00	SPRING, TENSION	
562	♠:3-664-333-00	PLATE, SHIELD, MOTOR	
563	♠:3-671-060-00	BRACKET, MOTOR	
564	3-671-069-00	GEAR (B), THREADING	
565	3-671-070-00	GEAR (D), THREADING	
566	3-671-071-00	GEAR (E), THREADING	
567	3-671-078-00	BELT, FWD	
568	3-671-098-00	BELT, THREADING	
569	3-671-120-00	BELT, RELAY	
570	3-671-126-00	GEAR (C), THREADING	
571	3-671-127-00	GEAR (A), THREADING	
572	♠:3-671-129-00	ARM, CHANGE	
573	♠:3-671-131-00	ARM, REMOVAL, ELECTROSTATIC	
574	3-671-171-02	PULLEY (SMALL), RELAY	
575	♠:3-671-174-00	HOLDER, SENSOR, T	
576	♠:3-671-180-00	LID OPEN	
577	3-701-443-11	WASHER	
578	3-701-443-21	WASHER, 5	
579	3-703-075-00	CAP 2, SHAFT	
580	A-6740-071-A	FWD ASSY	553,554,561,579
581	3-701-439-21	WASHER	

4-13. CHASSIS ASSEMBLY (5)

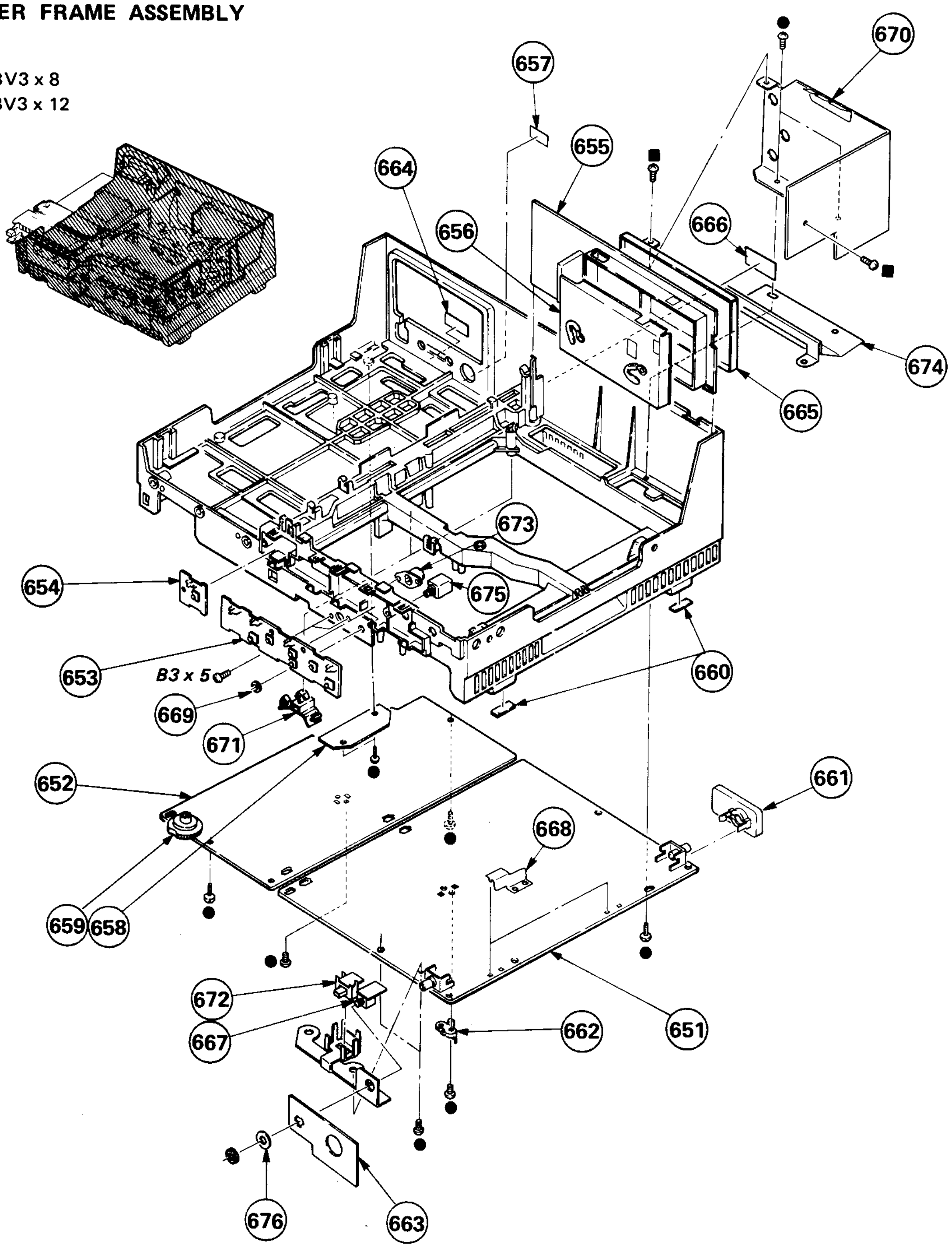
■ : TA, BV3 x 8
● : TA, BV3 x 12


605
612
603
630
619
620
617
620
E2.3
622
622
621
621
636
601
624
PSW
3 x 12
N3
616
628
623
626
608
611
618
621
E2.3
PSW3 x 6
635
PS
3 x 8
PS3 x 8
606
615
629
PS3 x 8
614
607
631
604
625
610
634
602
627
613
632
609
633
P3 x 8

No.	Part No.	Description	Remark
601	♠:1-605-701-00	DR-8 BOARD	
602	A-6737-106-A	CAPSTAN BLOCK ASSY	
603	A-6750-135-A	RING BLOCK ASSY, THREADING	605,616,617 620-624,626
604	X-3659-308-0	GUIDE ASSY, NO.0	
605	X-3659-337-0	ARM ASSY, PINCH ROLLER	612
606	♠:X-3664-337-0	SUPPORT ASSY, RING ROLLER	
607	X-3674-101-0	HOUSING ASSY, CAPSTAN	
608	1-543-145-00	HEAD, SENSING	
609	♠:1-605-708-00	FG-2 BOARD	
610	3-646-182-00	CAP, OIL	
611	3-646-183-00	ABSORBER, CAPSTAN OIL	
612	X-3652-510-3	PINCH ROLLER ASSY	
613	3-659-314-00	RETAINER, THRUST	
614	3-659-337-00	FLANGE, NO.0 GUIDE UPPER	
615	3-659-338-00	SPRING, COMPRESSION	
616	♠:3-659-385-00	CAP (LARGE), GUIDE ROLLER	
617	3-659-388-00	SPRING	
618	3-659-551-00	FRAME, GUIDE, NO.0	
619	♠:3-659-632-00	HOLDER, S SENSOR	
620	♠:3-659-643-00	CAP(SMALL)(UPPER), GUIDE ROLLER	
621	♠:3-659-644-00	CAP(SMALL)(LOWER), GUIDE ROLLER	
622	♠:3-659-645-00	ROLLER (SMALL), GUIDE	
623	♠:3-659-646-00	ROLLER (LARGE), GUIDE	
624	♠:3-659-647-00	CAP(LARGE)(UPPER), GUIDE ROLLER	
625	3-659-759-11	SPACER, CAPSTAN	
626	♠:3-660-912-00	ROLLER, PRECEDING GUIDE	
627	♠:3-671-191-00	RETAINER, CAPSTAN	
628	♠:3-672-402-00	PLATE, GUIDE	
629	3-703-074-00	CAP 3, SHAFT	
630	4-829-039-00	RIVET, NYLON	
631	3-659-391-00	ROLLER, RING	
632	3-658-161-00	HOLDER, DME	
633	♠:3-659-313-00	PLATE, ADJUSTMENT, DME	
634	3-701-441-21	WASHER	
635	3-664-498-00	ROLLER (N), RING	
636	♠:3-672-446-02	PLATE	

4-14. LOWER FRAME ASSEMBLY

■ : TA, BV3 x 8
● : TA, BV3 x 12


670
657
655
664
656
666
674
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673
654
675
653
B3 x 5
660
669
671
652
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659
658
672
667
662
651
676
663

No.	Part No.	Description	Remark
651	♠:A-6711-378-A	YC-23 BOARD, COMPLETE	667,672,676
652	♠:A-6713-145-A	SS-9 (ES) BOARD, COMPLETE	
653	♠:1-608-542-00	FS-22 BOARD	
654	♠:1-608-543-00	FS-23 BOARD	
655	♠:A-6728-416-A	RF-4 BOARD, COMPLETE	
656	♠:X-3674-104-0	CASE (A) ASSY, SHIELD, RF	
657	3-674-105-00	LABEL, MARK	
658	♠:1-606-102-00	CP-6 BOARD	
659	3-659-528-00	KNOB, TRACK CONTROL	
660	3-659-532-00	FELT, FOOT	
661	3-674-192-00	COVER, JACK	
662	♠:3-671-145-00	STOPPER, BOTTOM PLATE	
663	3-674-184-00	PLATE, BLIND	
664	3-674-101-00	LABEL, SWITCH, MAINS	
665	♠:3-674-149-00	CASE (C), SHIELD, RF	
666	♠:3-674-193-00	LABEL, MODEL NUMBER (WG)	
667	1-507-285-00	JACK	
668	♠:3-671-252-00	PLATE (D), GROUND	
669	3-671-260-00	NUT, ROUND, KNURL	
670	♠:X-3674-116-0	PLATE ASSY, SHIELD, REAR	
671	♠:3-671-187-00	CLIP, ANCHOR	
672	1-553-831-00	SWITCH, SLIDE	
673	1-933-276-00	JACK (RJ-2)	
674	♠:3-674-152-00	CASE (F), SHIELD, RF	
675	1-933-481-00	JACK (CP-4)	
676	♠:3-669-513-00	SPACER, MICROPHONE JACK	

SECTION 5
ELECTRICAL PARTS LIST

RF-4

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : μF, PF : μμF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : μH

Ref.No.	Part No.	Description			Remark
	♠:A-6728-416-A	RF-4 BOARD, COMPLETE *********************			
	♠:3-674-128-00	CASE (B), SHIELD, RF			
	♠:3-674-142-00	CASE (D), SHIELD, RF			
	♠:3-674-148-00	CASE (E), SHIELD, RF			
		CAPACITOR			
C001	1-123-380-00	ELECT	1MF	20%	50V
C002	1-161-494-00	CERAMIC	0.022MF	30%	25V
C003	1-101-006-00	CERAMIC	0.047MF		50V
C004	1-161-494-00	CERAMIC	0.022MF	30%	25V
C006	1-161-330-51	CERAMIC	0.01MF	30%	25V
C007	1-161-330-51	CERAMIC	0.01MF	30%	25V
C008	1-123-381-00	ELECT	2.2MF	20%	50V
C009	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C010	1-161-267-00	CERAMIC	47PF	5%	50V
C011	1-101-882-00	CERAMIC	51PF	5%	50V
C013	1-123-318-00	ELECT	33MF	20%	16V
C014	1-161-319-00	CERAMIC	470PF	10%	50V
C015	1-161-271-00	CERAMIC	100PF	5%	50V
C016	1-161-330-51	CERAMIC	0.01MF	30%	25V
C017	1-123-380-00	ELECT	1MF	20%	50V
C018	1-101-006-00	CERAMIC	0.047MF		50V
C019	1-161-494-00	CERAMIC	0.022MF	30%	25V
C020	1-161-494-00	CERAMIC	0.022MF	30%	25V
C021	1-161-494-00	CERAMIC	0.022MF	30%	25V
C022	1-161-317-00	CERAMIC	330PF	10%	50V
C023	1-131-371-00	TANTALUM	10MF	20%	16V
C024	1-161-330-51	CERAMIC	0.01MF	30%	25V
C025	1-161-330-51	CERAMIC	0.01MF	30%	25V
C026	1-101-005-00	CERAMIC	0.022MF		50V
C027	1-123-318-00	ELECT	33MF	20%	16V
C028	1-161-330-51	CERAMIC	0.01MF	30%	25V
C029	1-123-379-00	ELECT	0.47MF	20%	50V
C030	1-102-950-00	CERAMIC	13PF	5%	50V
C031	1-101-882-00	CERAMIC	51PF	5%	50V
C032	1-101-882-00	CERAMIC	51PF	5%	50V
C033	1-102-950-00	CERAMIC	13PF	5%	50V
C034	1-123-296-00	ELECT	220MF	20%	6.3V
C035	1-123-380-00	ELECT	1MF	20%	50V
C036	1-161-271-00	CERAMIC	100PF	5%	50V
C037	1-161-272-00	CERAMIC	120PF	5%	50V
C038	1-123-307-00	ELECT	100MF	20%	10V
C039	1-161-006-00	CERAMIC	0.0027MF	10%	25V
C040	1-102-117-00	CERAMIC	820PF	10%	50V
C041	1-123-321-00	ELECT	220MF	20%	16V
C042	1-123-356-00	ELECT	10MF	20%	16V
C043	1-123-356-00	ELECT	10MF	20%	16V
C044	1-161-330-51	CERAMIC	0.01MF	30%	25V
C045	1-123-332-00	ELECT	47MF	20%	16V
C046	1-161-017-00	CERAMIC	0.022MF	10%	25V
C047	1-123-332-00	ELECT	47MF	20%	16V
C048	1-161-330-51	CERAMIC	0.01MF	30%	25V
C049	1-102-529-00	CERAMIC	100PF	5%	50V
C050	1-161-330-51	CERAMIC	0.01MF	30%	25V
C051	1-161-330-51	CERAMIC	0.01MF	30%	25V
C052	1-161-263-00	CERAMIC	22PF	5%	50V
C053	1-161-330-51	CERAMIC	0.01MF	30%	25V
C054	1-161-330-51	CERAMIC	0.01MF	30%	25V
C056	1-161-021-00	CERAMIC	0.047MF	10%	25V
C057	1-131-371-00	TANTALUM	10MF	20%	16V
C058	1-131-371-00	TANTALUM	10MF	20%	16V
C059	1-123-296-00	ELECT	220MF	20%	6.3V
C060	1-161-494-00	CERAMIC	0.022MF	30%	25V
C061	1-123-307-00	ELECT	100MF	20%	10V
C062	1-161-330-51	CERAMIC	0.01MF	30%	25V
C063	1-161-015-00	CERAMIC	0.015MF	10%	25V
C065	1-102-947-00	CERAMIC	10PF	5%	50V
		CONNECTOR			
CN001	♠:1-508-797-00	PIN, CONNECTOR 4P			
CN002	♠:1-508-845-00	PIN, CONNECTOR 6P			
CN003	♠:1-508-846-00	PIN, CONNECTOR 8P			
CN004	♠:1-508-847-00	PIN, CONNECTOR 4P			
CN005	♠:1-508-743-00	PIN, CONNECTOR 5P			
CN006	♠:1-508-916-00	CONNECTOR PIN 2P			
		DIODE			
D001	8-719-815-55	DIODE 1S1555			
D002	8-719-815-55	DIODE 1S1555			
D003	8-719-815-55	DIODE 1S1555			
D004	8-719-815-55	DIODE 1S1555			
D005	8-719-815-55	DIODE 1S1555			
D006	8-719-815-55	DIODE 1S1555			
D007	8-719-815-55	DIODE 1S1555			
		DELAY LINE			
DL001	1-415-203-00	DELAY LINE			
		IC			
IC001	8-751-340-00	IC CX-134A			
IC002	8-751-350-00	IC CX-135			
		COIL			
L001	1-408-029-00	MICRO INDUCTOR 0.56UH			
L002	1-408-029-00	MICRO INDUCTOR 0.56UH			
L003	1-408-158-00	MICRO INDUCTOR 6.8MMH			
L004	1-408-158-00	MICRO INDUCTOR 6.8MMH			
L005	1-408-444-11	MICRO INDUCTOR 15UH			
L006	1-408-444-11	MICRO INDUCTOR 15UH			
L007	1-408-455-11	MICRO INDUCTOR 120UH			
L008	1-407-717-00	MICRO INDUCTOR 1MMH			

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Remark
L009	1-408-603-00	MICRO INDUCTOR 10UH	
L010	1-408-455-11	MICRO INDUCTOR 120UH	
L011	1-408-424-00	MICRO INDUCTOR 180UH	
L012	1-408-455-11	MICRO INDUCTOR 120UH	
L013	1-408-456-11	MICRO INDUCTOR 150UH	
L014	1-408-445-11	MICRO INDUCTOR 18UH	
L015	1-408-445-11	MICRO INDUCTOR 18UH	
L016	1-408-454-00	MICRO INDUCTOR 100UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	8-729-245-83	TRANSISTOR 2SC2458	
Q002	8-765-422-00	TRANSISTOR 2SK152-2	
Q003	8-729-245-83	TRANSISTOR 2SC2458	
Q004	8-729-245-83	TRANSISTOR 2SC2458	
Q005	8-765-422-00	TRANSISTOR 2SK152-2	
Q006	8-729-245-83	TRANSISTOR 2SC2458	
Q007	=>8-729-606-33	TRANSISTOR 2SC2603-F	
Q008	=>8-765-212-20	TRANSISTOR 2SA925	
Q009	=>8-729-612-77	TRANSISTOR 2SA1027R	
Q010	=>8-729-663-47	TRANSISTOR 2SC1364	
Q011	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q012	8-729-384-48	TRANSISTOR 2SA844	
Q013	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q014	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q015	8-729-245-83	TRANSISTOR 2SC2458	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-246-485-00	CARBON	3.3K	5%	1/4W	
R002	1-246-463-00	CARBON	390	5%	1/4W	
R003	1-246-497-00	CARBON	10K	5%	1/4W	
R004	1-246-468-00	CARBON	620	5%	1/4W	
R005	1-246-463-00	CARBON	390	5%	1/4W	
R006	1-246-497-00	CARBON	10K	5%	1/4W	
R007	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R008	1-246-491-00	CARBON	5.6K	5%	1/4W	
R009	1-246-464-00	CARBON	430	5%	1/4W	
R010	1-246-421-00	CARBON	6.8	5%	1/4W	
R011	1-246-457-00	CARBON	220	5%	1/4W	
R012	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R013	1-246-481-00	CARBON	2.2K	5%	1/4W	
R014	1-246-481-00	CARBON	2.2K	5%	1/4W	
R015	1-246-481-00	CARBON	2.2K	5%	1/4W	
R016	1-246-481-00	CARBON	2.2K	5%	1/4W	
R017	1-246-473-00	CARBON	1K	5%	1/4W	
R018	1-246-473-00	CARBON	1K	5%	1/4W	
R019	1-246-467-00	CARBON	560	5%	1/4W	
R020	1-246-475-00	CARBON	1.2K	5%	1/4W	
R021	1-246-491-00	CARBON	5.6K	5%	1/4W	
R022	1-246-497-00	CARBON	10K	5%	1/4W	
R023	1-246-463-00	CARBON	390	5%	1/4W	
R024	1-246-485-00	CARBON	3.3K	5%	1/4W	
R025	1-246-497-00	CARBON	10K	5%	1/4W	
R026	1-246-463-00	CARBON	390	5%	1/4W	
R027	1-246-468-00	CARBON	620	5%	1/4W	
R028	1-246-473-00	CARBON	1K	5%	1/4W	
R029	1-246-491-00	CARBON	5.6K	5%	1/4W	
R030	1-246-468-00	CARBON	620	5%	1/4W	
R031	1-246-481-00	CARBON	2.2K	5%	1/4W	
R032	1-246-489-00	CARBON	4.7K	5%	1/4W	
R033	1-246-451-00	CARBON	120	5%	1/4W	
R034	1-246-509-00	CARBON	33K	5%	1/4W	
R035	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R036	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R037	1-246-502-00	CARBON	16K	5%	1/4W	
R038	1-246-485-00	CARBON	3.3K	5%	1/4W	
R039	1-246-473-00	CARBON	1K	5%	1/4W	
R040	1-246-469-00	CARBON	680	5%	1/4W	
R041	1-246-463-00	CARBON	390	5%	1/4W	
R042	1-246-519-00	CARBON	82K	5%	1/4W	
R043	1-246-497-00	CARBON	10K	5%	1/4W	
R044	1-246-464-00	CARBON	430	5%	1/4W	
R045	1-246-515-00	CARBON	56K	5%	1/4W	
R046	1-246-422-00	CARBON	7.5	5%	1/4W	
R047	⚠1-246-989-00	CARBON	82	5%	1/8W	F
R048	1-246-497-00	CARBON	10K	5%	1/4W	
R049	1-246-477-00	CARBON	1.5K	5%	1/4W	
R050	1-246-477-00	CARBON	1.5K	5%	1/4W	
R051	1-246-449-00	CARBON	100	5%	1/4W	
R052	⚠1-246-986-00	CARBON	39	5%	1/8W	F
R053	1-246-475-00	CARBON	1.2K	5%	1/4W	
R054	1-246-479-00	CARBON	1.8K	5%	1/4W	
R055	1-246-468-00	CARBON	620	5%	1/4W	
R057	1-246-521-00	CARBON	100K	5%	1/4W	
R058	1-246-496-00	CARBON	9.1K	5%	1/4W	
R059	1-246-500-00	CARBON	13K	5%	1/4W	
R060	1-246-473-00	CARBON	1K	5%	1/4W	
R061	1-246-469-00	CARBON	680	5%	1/4W	
R062	1-246-441-00	CARBON	47	5%	1/4W	
R065	1-246-481-00	CARBON	2.2K	5%	1/4W	
R066	1-246-465-00	CARBON	470	5%	1/4W	
R067	1-246-480-00	CARBON	2K	5%	1/4W	
R068	1-246-491-00	CARBON	5.6K	5%	1/4W	
R069	1-246-487-00	CARBON	3.9K	5%	1/4W	
R070	1-246-479-00	CARBON	1.8K	5%	1/4W	
R071	1-246-459-00	CARBON	270	5%	1/4W	
R072	1-246-449-00	CARBON	100	5%	1/4W	
R073	1-246-459-00	CARBON	270	5%	1/4W	
R074	1-246-467-00	CARBON	560	5%	1/4W	
R075	1-246-501-00	CARBON	15K	5%	1/4W	
R076	1-246-453-00	CARBON	150	5%	1/4W	
R077	1-246-503-00	CARBON	18K	5%	1/4W	
R078	1-246-477-00	CARBON	1.5K	5%	1/4W	
R079	1-246-449-00	CARBON	100	5%	1/4W	
R080	1-246-465-00	CARBON	470	5%	1/4W	
R081	1-246-497-00	CARBON	10K	5%	1/4W	
R082	1-246-451-00	CARBON	120	5%	1/4W	

When indicating parts by reference number, please include the board name.

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description			Remark
R083	1-246-451-00	CARBON	120	5%	1/4W
R084	1-246-468-00	CARBON	620	5%	1/4W
R085	1-246-497-00	CARBON	10K	5%	1/4W

VARIABLE RESISTOR

RV001	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K
RV002	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K
RV003	1-226-848-00	RES, ADJ, CARBON 2.2K
RV004	1-226-850-00	RES, ADJ, CARBON 4.7K
RV005	1-226-847-00	RES, ADJ, CARBON 1K
RV006	1-226-849-00	RES, ADJ, CARBON 3.3K
RV007	1-224-249-XX	RES, ADJ, METAL GLAZE 1K

TRANSFORMER

T001	1-427-455-00	TRANSFORMER, I/O PUT
T002	1-427-455-00	TRANSFORMER, I/O PUT

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♠:A-6711-378-A YC-23 BOARD, COMPLETE

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♠:3-661-626-00	PLATE, REAR, SHIELD CASE
♠:3-661-659-00	CASE (MAIN), SHIELD
♠:3-669-513-00	SPACER, MICROPHONE JACK
3-671-893-00	CLAMP (LOW TYPE)

FILTER

BPF001	1-231-375-00	FILTER, BANDPASS

CAPACITOR

C001	1-123-333-00	ELECT	100MF	20%	16V
C002	1-161-036-00	CERAMIC	0.047MF	20%	25V
C003	1-123-306-00	ELECT	47MF	20%	10V
C004	1-161-036-00	CERAMIC	0.047MF	20%	25V
C005	1-123-356-00	ELECT	10MF	20%	16V
C006	1-161-345-00	CERAMIC	75PF	5%	50V
C007	1-161-261-00	CERAMIC	15PF	5%	50V
C008	1-102-978-00	CERAMIC	220PF	5%	50V
C009	1-161-036-00	CERAMIC	0.047MF	20%	25V
C010	1-123-332-00	ELECT	47MF	20%	16V
C011	1-161-266-00	CERAMIC	39PF	5%	50V
C012	1-123-332-00	ELECT	47MF	20%	16V
C013	1-123-296-00	ELECT	220MF	20%	6.3V
C014	1-123-307-00	ELECT	100MF	20%	10V
C015	1-161-036-00	CERAMIC	0.047MF	20%	25V
C016	1-123-379-00	ELECT	0.47MF	20%	50V
C017	1-123-307-00	ELECT	100MF	20%	10V
C018	1-123-356-00	ELECT	10MF	20%	16V
C019	1-123-318-00	ELECT	33MF	20%	16V
C020	1-123-356-00	ELECT	10MF	20%	16V
C022	1-123-333-00	ELECT	100MF	20%	16V
C023	1-161-330-51	CERAMIC	0.01MF	30%	25V
C024	1-102-950-00	CERAMIC	13PF	5%	50V

Ref.No.	Part No.	Description			Remark
C025	1-101-882-00	CERAMIC	51PF	5%	50V
C026	1-101-882-00	CERAMIC	51PF	5%	50V
C027	1-102-950-00	CERAMIC	13PF	5%	50V
C028	1-102-530-00	CERAMIC	120PF	5%	50V
C029	1-161-063-00	CERAMIC	0.1MF	20%	25V
C030	1-102-820-00	CERAMIC	330PF	5%	50V
C031	1-123-318-00	ELECT	33MF	20%	16V
C032	1-123-318-00	ELECT	33MF	20%	16V
C033	1-161-036-00	CERAMIC	0.047MF	20%	25V
C034	1-161-330-51	CERAMIC	0.01MF	30%	25V
C035	1-161-330-51	CERAMIC	0.01MF	30%	25V
C036	1-123-332-00	ELECT	47MF	20%	16V
C037	1-123-332-00	ELECT	47MF	20%	16V
C038	1-161-330-51	CERAMIC	0.01MF	30%	25V
C039	1-161-330-51	CERAMIC	0.01MF	30%	25V
C040	1-123-356-00	ELECT	10MF	20%	16V
C041	1-161-036-00	CERAMIC	0.047MF	20%	25V
C042	1-123-333-00	ELECT	100MF	20%	16V
C043	1-161-321-00	CERAMIC	680PF	10%	50V
C044	1-161-330-51	CERAMIC	0.01MF	30%	25V
C045	1-123-332-00	ELECT	47MF	20%	16V
C046	1-161-036-00	CERAMIC	0.047MF	20%	25V
C047	1-123-296-00	ELECT	220MF	20%	6.3V
C048	1-123-332-00	ELECT	47MF	20%	16V
C049	1-123-332-00	ELECT	47MF	20%	16V
C050	1-161-036-00	CERAMIC	0.047MF	20%	25V
C051	1-123-332-00	ELECT	47MF	20%	16V
C052	1-123-306-00	ELECT	47MF	20%	10V
C057	1-123-333-00	ELECT	100MF	20%	16V
C058	1-161-036-00	CERAMIC	0.047MF	20%	25V
C059	1-123-311-00	ELECT	1000MF	20%	10V
C060	1-123-308-00	ELECT	220MF	20%	10V
C061	1-101-059-00	CERAMIC	510PF	5%	50V
C062	1-161-330-51	CERAMIC	0.01MF	30%	25V
C064	1-123-330-00	ELECT	22MF	20%	16V
C065	1-123-333-00	ELECT	100MF	20%	16V
C066	1-123-332-00	ELECT	47MF	20%	16V
C068	1-123-356-00	ELECT	10MF	20%	16V
C070	1-123-318-00	ELECT	33MF	20%	16V
C071	1-123-332-00	ELECT	47MF	20%	16V
C072	1-123-318-00	ELECT	33MF	20%	16V
C073	1-161-494-00	CERAMIC	0.022MF	30%	25V
C074	1-161-330-51	CERAMIC	0.01MF	30%	25V
C075	1-123-306-00	ELECT	47MF	20%	10V
C076	1-161-330-51	CERAMIC	0.01MF	30%	25V
C077	1-123-332-00	ELECT	47MF	20%	16V
C078	1-161-036-00	CERAMIC	0.047MF	20%	25V
C079	1-161-036-00	CERAMIC	0.047MF	20%	25V
C080	1-123-332-00	ELECT	47MF	20%	16V
C081	1-161-330-51	CERAMIC	0.01MF	30%	25V
C082	1-161-330-51	CERAMIC	0.01MF	30%	25V
C083	1-161-264-00	CERAMIC	27PF	5%	50V
C084	1-161-264-00	CERAMIC	27PF	5%	50V

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description			Remark
C085	1-161-330-51	CERAMIC	0.01MF	30%	25V
C086	1-161-330-51	CERAMIC	0.01MF	30%	25V
C087	1-161-036-00	CERAMIC	0.047MF	20%	25V
C088	1-101-361-00	CERAMIC	150PF	5%	50V
C089	1-161-330-51	CERAMIC	0.01MF	30%	25V
C090	1-101-361-00	CERAMIC	150PF	5%	50V
C091	1-161-330-51	CERAMIC	0.01MF	30%	25V
C092	1-161-330-51	CERAMIC	0.01MF	30%	25V
C093	1-161-330-51	CERAMIC	0.01MF	30%	25V
C094	1-123-356-00	ELECT	10MF	20%	16V
C095	1-161-330-51	CERAMIC	0.01MF	30%	25V
C096	1-161-036-00	CERAMIC	0.047MF	20%	25V
C097	1-102-950-00	CERAMIC	13PF	5%	50V
C098	1-161-330-51	CERAMIC	0.01MF	30%	25V
C099	1-161-036-00	CERAMIC	0.047MF	20%	25V
C100	1-102-822-00	CERAMIC	390PF	5%	50V
C101	1-161-330-51	CERAMIC	0.01MF	30%	25V
C102	1-102-979-00	CERAMIC	240PF	5%	50V
C103	1-161-268-00	CERAMIC	56PF	5%	50V
C104	1-123-356-00	ELECT	10MF	20%	16V
C105	1-161-036-00	CERAMIC	0.047MF	20%	25V
C106	1-161-036-00	CERAMIC	0.047MF	20%	25V
C107	1-161-268-00	CERAMIC	56PF	5%	50V
C108	1-102-824-00	CERAMIC	430PF	5%	50V
C109	1-161-036-00	CERAMIC	0.047MF	20%	25V
C110	1-131-202-00	TANTALUM	1.5MF	20%	20V
C111	1-161-036-00	CERAMIC	0.047MF	20%	25V
C112	1-161-330-51	CERAMIC	0.01MF	30%	25V
C113	1-161-330-51	CERAMIC	0.01MF	30%	25V
C114	1-108-242-00	MYLAR	0.022MF	10%	50V
C115	1-161-330-51	CERAMIC	0.01MF	30%	25V
C116	1-161-036-00	CERAMIC	0.047MF	20%	25V
C117	1-161-330-51	CERAMIC	0.01MF	30%	25V
C118	1-161-036-00	CERAMIC	0.047MF	20%	25V
C119	1-161-271-00	CERAMIC	100PF	5%	50V
C120	1-102-820-00	CERAMIC	330PF	5%	50V
C121	1-161-036-00	CERAMIC	0.047MF	20%	25V
C122	1-161-330-51	CERAMIC	0.01MF	30%	25V
C123	1-161-036-00	CERAMIC	0.047MF	20%	25V
C124	1-161-272-00	CERAMIC	120PF	5%	50V
C125	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C126	1-123-332-00	ELECT	47MF	20%	16V
C127	1-161-271-00	CERAMIC	100PF	5%	50V
C128	1-123-306-00	ELECT	47MF	20%	10V
C129	1-123-380-00	ELECT	1MF	20%	50V
C130	1-123-319-00	ELECT	47MF	20%	16V
C131	1-161-036-00	CERAMIC	0.047MF	20%	25V
C132	1-123-356-00	ELECT	10MF	20%	16V
C133	1-123-328-00	ELECT	4.7MF	20%	25V
C134	1-123-328-00	ELECT	4.7MF	20%	25V
C135	1-123-328-00	ELECT	4.7MF	20%	25V
C136	1-161-330-51	CERAMIC	0.01MF	30%	25V
C137	1-161-323-00	CERAMIC	0.001MF	10%	50V
C138	1-102-852-00	CERAMIC	47PF	5%	50V
C139	1-161-036-00	CERAMIC	0.047MF	20%	25V
C140	1-123-332-00	ELECT	47MF	20%	16V
C141	1-123-380-00	ELECT	1MF	20%	50V
C142	1-108-838-00	MYLAR	0.012MF	10%	50V
C143	1-161-281-00	CERAMIC	15PF	5%	50V
C144	1-123-380-00	ELECT	1MF	20%	50V
C145	1-108-838-00	MYLAR	0.012MF	10%	50V
C146	1-161-330-51	CERAMIC	0.01MF	30%	25V
C147	1-161-323-00	CERAMIC	0.001MF	10%	50V
C148	1-161-284-00	CERAMIC	27PF	5%	50V
C149	1-123-380-00	ELECT	1MF	20%	50V
C150	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C151	1-102-820-00	CERAMIC	330PF	5%	50V
C152	1-161-330-51	CERAMIC	0.01MF	30%	25V
C153	1-161-036-00	CERAMIC	0.047MF	20%	25V
C154	1-108-849-00	MYLAR	0.1MF	10%	50V
C155	1-123-332-00	ELECT	47MF	20%	16V
C156	1-161-330-51	CERAMIC	0.01MF	30%	25V
C158	1-161-330-51	CERAMIC	0.01MF	30%	25V
C159	1-161-330-51	CERAMIC	0.01MF	30%	25V
C160	1-161-330-51	CERAMIC	0.01MF	30%	25V
C161	1-161-330-51	CERAMIC	0.01MF	30%	25V
C162	1-161-036-00	CERAMIC	0.047MF	20%	25V
C163	1-123-332-00	ELECT	47MF	20%	16V
C164	1-161-330-51	CERAMIC	0.01MF	30%	25V
C165	1-108-239-00	MYLAR	0.01MF	10%	50V
C166	1-123-356-00	ELECT	10MF	20%	16V
C167	1-108-555-00	MYLAR	0.001MF	5%	50V
C168	1-108-561-00	MYLAR	0.0018MF	5%	50V
C169	1-161-036-00	CERAMIC	0.047MF	20%	25V
C170	1-108-555-00	MYLAR	0.001MF	5%	50V
C171	1-108-555-00	MYLAR	0.001MF	5%	50V
C172	1-161-036-00	CERAMIC	0.047MF	20%	25V
C173	1-161-494-00	CERAMIC	0.022MF	30%	25V
C174	1-161-494-00	CERAMIC	0.022MF	30%	25V
C175	1-161-494-00	CERAMIC	0.022MF	30%	25V
C176	1-102-531-00	CERAMIC	150PF	5%	50V
C178	1-102-525-00	CERAMIC	68PF	5%	50V
C180	1-102-527-00	CERAMIC	82PF	5%	50V
C181	1-161-494-00	CERAMIC	0.022MF	30%	25V
C182	1-123-332-00	ELECT	47MF	20%	16V
C183	1-161-036-00	CERAMIC	0.047MF	20%	25V
C184	1-161-330-51	CERAMIC	0.01MF	30%	25V
C185	1-161-494-00	CERAMIC	0.022MF	30%	25V
C186	1-123-380-00	ELECT	1MF	20%	50V
C187	1-161-330-51	CERAMIC	0.01MF	30%	25V
C188	1-123-332-00	ELECT	47MF	20%	16V
C189	1-161-036-00	CERAMIC	0.047MF	20%	25V
C190	1-123-356-00	ELECT	10MF	20%	16V
C191	1-102-978-00	CERAMIC	220PF	5%	50V
C192	1-161-321-00	CERAMIC	680PF	10%	50V
C193	1-123-380-00	ELECT	1MF	20%	50V

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
C194	1-102-129-00	CERAMIC	0.01MF	10%	50V
C195	1-161-036-00	CERAMIC	0.047MF	20%	25V
C196	1-123-332-00	ELECT	47MF	20%	16V
C197	1-102-824-00	CERAMIC	430PF	5%	50V
C198	1-102-824-00	CERAMIC	430PF	5%	50V
C199	1-102-978-00	CERAMIC	220PF	5%	50V
C200	1-123-307-00	ELECT	100MF	20%	10V
C201	1-161-330-51	CERAMIC	0.01MF	30%	25V
C205	1-161-330-51	CERAMIC	0.01MF	30%	25V
C207	1-161-272-00	CERAMIC	120PF	5%	50V
C208	1-123-332-00	ELECT	47MF	20%	16V
C209	1-127-456-51	ELECT(SOLID)	0.22MF	20%	25V
C211	1-123-380-00	ELECT	1MF	20%	50V
C212	1-108-833-00	MYLAR	0.0047MF	10%	50V
C213	1-108-555-00	MYLAR	0.001MF	5%	50V
C214	1-108-555-00	MYLAR	0.001MF	5%	50V
C215	1-123-321-00	ELECT	220MF	20%	16V
C216	1-102-531-00	CERAMIC	150PF	5%	50V
C217	1-123-379-00	ELECT	0.47MF	20%	50V
C218	1-123-356-00	ELECT	10MF	20%	16V
C219	1-101-059-00	CERAMIC	510PF	5%	50V
C220	1-123-295-00	ELECT	100MF	20%	6.3V
C221	1-161-494-00	CERAMIC	0.022MF	30%	25V
C222	1-161-330-51	CERAMIC	0.01MF	30%	25V
C223	1-161-330-51	CERAMIC	0.01MF	30%	25V
C224	1-161-351-00	CERAMIC	20PF	5%	50V
C225	1-161-494-00	CERAMIC	0.022MF	30%	25V
C226	1-102-527-00	CERAMIC	82PF	5%	50V
C227	1-161-330-51	CERAMIC	0.01MF	30%	25V
C228	1-123-307-00	ELECT	100MF	20%	10V
C230	1-102-859-00	CERAMIC	75PF	5%	50V
C231	1-123-379-00	ELECT	0.47MF	20%	50V
C233	1-123-328-00	ELECT	4.7MF	20%	25V
C240	1-123-356-00	ELECT	10MF	20%	16V
C241	1-102-947-00	CERAMIC	10PF	5%	50V
C242	1-102-961-00	CERAMIC	27PF	5%	50V
C243	1-101-974-00	CERAMIC	20PF	5%	50V
C244	1-102-116-00	CERAMIC	680PF	10%	50V

CONNECTOR

Ref.No.	Part No.	Description
CN001♠:	1-508-846-00	PIN, CONNECTOR 8P
CN002♠:	1-508-797-00	PIN, CONNECTOR 4P
CN003♠:	1-508-743-00	PIN, CONNECTOR 5P
CN004♠:	1-508-743-00	PIN, CONNECTOR 5P
CN005	1-508-910-00	PIN, CONNECTOR 12P
CN006	1-508-910-00	PIN, CONNECTOR 12P
CN007♠:	1-508-845-00	PIN, CONNECTOR 6P
CN008♠:	1-508-743-00	PIN, CONNECTOR 5P
CN009♠:	1-508-742-00	PIN, CONNECTOR 3P

JACK

Ref.No.	Part No.	Description
CNJ001	1-560-750-21	CONNECTOR ASSY, BNC
CNJ002	1-560-750-21	CONNECTOR ASSY, BNC
CNJ003	1-507-285-21	JACK

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-815-55	DIODE 1S1555	
D002	8-719-815-55	DIODE 1S1555	
D003	8-719-815-55	DIODE 1S1555	
D004	8-719-815-55	DIODE 1S1555	
D005	8-719-815-55	DIODE 1S1555	
D006	8-719-815-55	DIODE 1S1555	
D007	8-719-815-55	DIODE 1S1555	
D008	8-719-815-55	DIODE 1S1555	
D009	8-719-815-55	DIODE 1S1555	
D010	8-719-815-55	DIODE 1S1555	
D011	8-719-815-55	DIODE 1S1555	
D012	8-719-815-55	DIODE 1S1555	
D014	8-719-815-55	DIODE 1S1555	
D015	8-719-815-55	DIODE 1S1555	
D016	8-719-815-55	DIODE 1S1555	
D017	8-719-815-55	DIODE 1S1555	
D018	8-719-815-55	DIODE 1S1555	
D019	8-719-815-55	DIODE 1S1555	
D020	8-719-815-55	DIODE 1S1555	
D021	8-719-815-55	DIODE 1S1555	
D022	8-719-815-55	DIODE 1S1555	
D023	8-719-815-55	DIODE 1S1555	
D024	8-719-815-55	DIODE 1S1555	
D025	8-719-815-55	DIODE 1S1555	
D026	8-719-815-55	DIODE 1S1555	
D027	8-719-815-55	DIODE 1S1555	
D031	8-719-815-55	DIODE 1S1555	
D032	8-719-815-55	DIODE 1S1555	
D035	8-719-815-55	DIODE 1S1555	
D036	8-719-815-55	DIODE 1S1555	
D037	8-719-815-55	DIODE 1S1555	
D039	8-719-815-55	DIODE 1S1555	
D040	8-719-815-55	DIODE 1S1555	

DELAY LINE

Ref.No.	Part No.	Description
DL001	1-415-223-21	DELAY LINE
DL002	1-415-198-00	DELAY LINE (1H)
DL003	1-415-148-51	DELAY LINE
DL004	1-415-204-00	DELAY LINE

IC

Ref.No.	Part No.	Description
IC001	8-759-601-87	IC CX-187
IC002	8-751-360-00	IC CX-136A
IC003	8-759-600-50	IC CX-150B
IC004	8-759-208-94	IC CX-894
IC005	8-751-450-00	IC CX-145
IC006	8-758-320-00	IC CX-832
IC007	8-759-600-23	IC CX-7942
IC008	8-749-900-01	IC SP-21A
IC009=>	8-749-910-18	IC BX1018A

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Remark
IC010	8-749-900-02	IC SP-22B	
IC011	8-759-600-50	IC CX-150B	
IC012	8-759-245-28	IC TC4528BP	
IC013	8-759-273-20	IC TA7320P	
IC014	8-751-300-00	IC CX-130	
IC015	8-759-208-94	IC CX-894	
IC016	8-759-684-78	IC M58478P	
IC017	8-759-979-26	IC CX-7926	
IC018	=>8-749-910-20	IC BX1020A	
IC019	=>8-749-910-17	IC BX1017A	

COIL

Ref.No.	Part No.	Description	Remark
L001	1-408-423-00	MICRO INDUCTOR 150UH	
L002	1-408-445-11	MICRO INDUCTOR 18UH	
L003	1-408-451-11	MICRO INDUCTOR 56UH	
L004	1-408-446-11	MICRO INDUCTOR 22UH	
L005	1-407-170-XX	MICRO INDUCTOR 120UH	
L006	1-407-172-XX	MICRO INDUCTOR 180UH	
L007	1-407-170-XX	MICRO INDUCTOR 120UH	
L008	1-408-456-11	MICRO INDUCTOR 150UH	
L009	1-408-450-11	MICRO INDUCTOR 47UH	
L010	1-408-454-00	MICRO INDUCTOR 100UH	
L011	1-408-420-00	MICRO INDUCTOR 82UH	
L012	1-408-442-11	MICRO INDUCTOR 10UH	
L013	1-408-445-11	MICRO INDUCTOR 18UH	
L014	1-408-415-00	MICRO INDUCTOR 33UH	
L015	1-408-423-00	MICRO INDUCTOR 150UH	
L016	1-408-417-00	MICRO INDUCTOR 47UH	
L018	1-408-446-11	MICRO INDUCTOR 22UH	
L019	1-408-462-11	MICRO INDUCTOR 470UH	
L020	1-408-462-11	MICRO INDUCTOR 470UH	
L021	1-408-455-11	MICRO INDUCTOR 120UH	
L022	1-408-455-11	MICRO INDUCTOR 120UH	
L023	1-408-419-00	MICRO INDUCTOR 68UH	
L024	1-408-419-00	MICRO INDUCTOR 68UH	
L025	1-408-408-00	MICRO INDUCTOR 8.2UH	
L026	1-408-454-00	MICRO INDUCTOR 100UH	
L027	1-408-419-00	MICRO INDUCTOR 68UH	
L028	1-407-195-XX	MICRO INDUCTOR 1MMH	
L029	1-408-450-11	MICRO INDUCTOR 47UH	
L030	1-408-462-11	MICRO INDUCTOR 470UH	
L031	1-408-408-00	MICRO INDUCTOR 8.2UH	
L032	1-407-494-00	MICRO INDUCTOR 1.5MMH	
L033	1-408-444-11	MICRO INDUCTOR 15UH	
L034	1-408-462-11	MICRO INDUCTOR 470UH	
L035	1-408-448-11	MICRO INDUCTOR 33UH	
L036	1-407-177-XX	MICRO INDUCTOR 470UH	
L037	1-408-462-11	MICRO INDUCTOR 470UH	
L038	1-407-501-31	MICRO INDUCTOR 5.6MMH	
L039	1-408-420-00	MICRO INDUCTOR 82UH	

VARIABLE COIL

Ref.No.	Part No.	Description	Remark
LV001	1-408-512-00	COIL (VARIABLE)	
LV002	1-408-531-00	COIL, VARIABLE	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	8-729-374-02	TRANSISTOR 2SB740	
Q002	8-729-374-02	TRANSISTOR 2SB740	
Q003	=>8-729-384-48	TRANSISTOR 2SA844	
Q004	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q005	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q006	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q007	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q008	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q009	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q013	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q014	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q015	8-729-245-83	TRANSISTOR 2SC2458	
Q016	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q017	=>8-729-117-54	TRANSISTOR 2SA1175	
Q018	8-729-245-83	TRANSISTOR 2SC2458	
Q019	8-729-245-83	TRANSISTOR 2SC2458	
Q020	8-729-245-83	TRANSISTOR 2SC2458	
Q021	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q022	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q023	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q024	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q025	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q026	8-729-245-83	TRANSISTOR 2SC2458	
Q027	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q028	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q029	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q030	8-729-245-83	TRANSISTOR 2SC2458	
Q031	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q032	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q033	8-729-245-83	TRANSISTOR 2SC2458	
Q034	8-729-245-83	TRANSISTOR 2SC2458	
Q035	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q036	8-729-245-83	TRANSISTOR 2SC2458	
Q037	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q038	8-729-245-83	TRANSISTOR 2SC2458	
Q039	=>8-729-117-54	TRANSISTOR 2SA1175	
Q040	=>8-729-603-50	TRANSISTOR 2SC403SP	
Q041	8-729-245-83	TRANSISTOR 2SC2458	
Q043	=>8-729-384-48	TRANSISTOR 2SA844	
Q044	8-729-245-83	TRANSISTOR 2SC2458	
Q045	8-729-245-83	TRANSISTOR 2SC2458	
Q046	8-729-353-52	TRANSISTOR 2SC535	
Q047	8-729-353-52	TRANSISTOR 2SC535	
Q048	8-729-353-52	TRANSISTOR 2SC535	
Q049	8-729-353-52	TRANSISTOR 2SC535	
Q050	8-729-245-83	TRANSISTOR 2SC2458	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
		RESISTOR				
R001	1-246-795-00	CARBON	10K		1/8W	
R002	1-246-788-00	CARBON	2.7K		1/8W	
R003	1-246-795-00	CARBON	10K		1/8W	
R004	1-246-785-00	CARBON	1.5K		1/8W	
R005	1-246-799-00	CARBON	22K		1/8W	
R006	1-246-777-00	CARBON	330		1/8W	
R007	1-246-786-00	CARBON	1.8K		1/8W	
R008	1-246-787-00	CARBON	2.2K		1/8W	
R009	1-246-795-00	CARBON	10K		1/8W	
R010	1-246-783-00	CARBON	1K		1/8W	
R011	1-246-795-00	CARBON	10K		1/8W	
R012	1-246-862-00	CARBON	36K		1/8W	
R013	1-246-854-00	CARBON	7.5K		1/8W	
R014	1-246-788-00	CARBON	2.7K		1/8W	
R015	1-246-846-00	CARBON	1.6K		1/8W	
R016	1-246-782-00	CARBON	820		1/8W	
R017	1-246-783-00	CARBON	1K		1/8W	
R018	1-246-845-00	CARBON	1.3K		1/8W	
R019	1-246-783-00	CARBON	1K		1/8W	
R020	1-246-791-00	CARBON	4.7K		1/8W	
R021	1-246-797-00	CARBON	15K		1/8W	
R022	1-246-843-00	CARBON	910		1/8W	
R023	1-246-786-00	CARBON	1.8K		1/8W	
R024	1-246-856-00	CARBON	11K		1/8W	
R025	1-246-797-00	CARBON	15K		1/8W	
R026	1-246-771-00	CARBON	100		1/8W	
R027	1-246-789-00	CARBON	3.3K		1/8W	
R028	1-246-786-00	CARBON	1.8K		1/8W	
R029	1-246-782-00	CARBON	820		1/8W	
R030	1-246-786-00	CARBON	1.8K		1/8W	
R031	1-246-795-00	CARBON	10K		1/8W	
R032	1-246-787-00	CARBON	2.2K		1/8W	
R033	1-246-842-00	CARBON	750		1/8W	
R034	1-246-794-00	CARBON	8.2K		1/8W	
R035	1-246-839-00	CARBON	430		1/8W	
R036	1-246-798-00	CARBON	18K		1/8W	
R037	1-246-771-00	CARBON	100		1/8W	
R038	1-246-783-00	CARBON	1K		1/8W	
R039	1-246-783-00	CARBON	1K		1/8W	
R040	1-246-794-00	CARBON	8.2K		1/8W	
R041	1-246-783-00	CARBON	1K		1/8W	
R042	1-246-794-00	CARBON	8.2K		1/8W	
R043 ⚠	1-247-033-00	CARBON	100	5%	1/8W	F
R044	1-246-773-00	CARBON	150		1/8W	
R049	1-246-795-00	CARBON	10K		1/8W	
R050	1-246-783-00	CARBON	1K		1/8W	
R051	1-246-783-00	CARBON	1K		1/8W	
R052	1-246-771-00	CARBON	100		1/8W	
R053	1-246-799-00	CARBON	22K		1/8W	
R054	1-246-795-00	CARBON	10K		1/8W	
R055	1-246-783-00	CARBON	1K		1/8W	

Ref.No.	Part No.	Description				Remark
R056	1-246-848-00	CARBON	2.4K		1/8W	
R057	1-246-843-00	CARBON	910		1/8W	
R058	1-246-847-00	CARBON	2K		1/8W	
R059	1-246-799-00	CARBON	22K		1/8W	
R060	1-246-796-00	CARBON	12K		1/8W	
R061	1-246-847-00	CARBON	2K		1/8W	
R062	1-246-802-00	CARBON	39K		1/8W	
R063	1-246-783-00	CARBON	1K		1/8W	
R064	1-246-783-00	CARBON	1K		1/8W	
R071	1-246-842-00	CARBON	750		1/8W	
R072	1-246-769-00	CARBON	68		1/8W	
R073	1-244-853-00	CARBON	150	5%	1/2W	
R074	1-244-853-00	CARBON	150	5%	1/2W	
R075	1-246-783-00	CARBON	1K		1/8W	
R077	1-246-783-00	CARBON	1K		1/8W	
R078	1-246-795-00	CARBON	10K		1/8W	
R079	1-246-801-00	CARBON	33K		1/8W	
R080	1-246-785-00	CARBON	1.5K		1/8W	
R081	1-246-852-00	CARBON	5.1K		1/8W	
R082	1-246-777-00	CARBON	330		1/8W	
R083	1-246-789-00	CARBON	3.3K		1/8W	
R084	1-246-801-00	CARBON	33K		1/8W	
R085	1-246-787-00	CARBON	2.2K		1/8W	
R086	1-246-771-00	CARBON	100		1/8W	
R087	1-246-847-00	CARBON	2K		1/8W	
R088	1-246-782-00	CARBON	820		1/8W	
R089	1-246-851-00	CARBON	4.3K		1/8W	
R090	1-246-811-00	CARBON	220K		1/8W	
R091	1-246-801-00	CARBON	33K		1/8W	
R092	1-246-801-00	CARBON	33K		1/8W	
R093	1-246-787-00	CARBON	2.2K		1/8W	
R094	1-246-799-00	CARBON	22K		1/8W	
R095	1-246-803-00	CARBON	47K		1/8W	
R096	1-246-807-00	CARBON	100K		1/8W	
R098	1-246-795-00	CARBON	10K		1/8W	
R099	1-246-840-00	CARBON	510		1/8W	
R100	1-246-861-00	CARBON	30K		1/8W	
R101	1-246-865-00	CARBON	62K		1/8W	
R102	1-246-796-00	CARBON	12K		1/8W	
R103	1-246-830-00	CARBON	75		1/8W	
R104	1-246-776-00	CARBON	270		1/8W	
R106	1-246-773-00	CARBON	150		1/8W	
R111	1-246-811-00	CARBON	220K		1/8W	
R112	1-246-791-00	CARBON	4.7K		1/8W	
R113	1-246-811-00	CARBON	220K		1/8W	
R114	1-246-783-00	CARBON	1K		1/8W	
R115	1-246-783-00	CARBON	1K		1/8W	
R116	1-246-779-00	CARBON	470		1/8W	
R117	1-246-799-00	CARBON	22K		1/8W	
R118	1-246-795-00	CARBON	10K		1/8W	
R119	1-246-785-00	CARBON	1.5K		1/8W	
R120	1-246-786-00	CARBON	1.8K		1/8W	
R121	1-246-791-00	CARBON	4.7K		1/8W	

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

YC-23

Ref.No.	Part No.	Description				Remark
R122	1-246-784-00	CARBON	1.2K		1/8W	
R123	1-246-771-00	CARBON	100		1/8W	
R124	1-246-791-00	CARBON	4.7K		1/8W	
R125	1-246-783-00	CARBON	1K		1/8W	
R126	1-246-783-00	CARBON	1K		1/8W	
R127	1-246-784-00	CARBON	1.2K		1/8W	
R128	1-246-787-00	CARBON	2.2K		1/8W	
R129	1-246-811-00	CARBON	220K		1/8W	
R130	1-246-783-00	CARBON	1K		1/8W	
R131	1-246-811-00	CARBON	220K		1/8W	
R132	1-246-775-00	CARBON	220		1/8W	
R133	1-246-801-00	CARBON	33K		1/8W	
R134	1-246-791-00	CARBON	4.7K		1/8W	
R135	1-246-792-00	CARBON	5.6K		1/8W	
R136	1-246-807-00	CARBON	100K		1/8W	
R137	1-246-798-00	CARBON	18K		1/8W	
R138	1-246-861-00	CARBON	30K		1/8W	
R139	1-246-781-00	CARBON	680		1/8W	
R140	1-246-792-00	CARBON	5.6K		1/8W	
R141	1-246-771-00	CARBON	100		1/8W	
R142	1-246-840-00	CARBON	510		1/8W	
R143	1-246-799-00	CARBON	22K		1/8W	
R144	1-246-791-00	CARBON	4.7K		1/8W	
R145	1-246-778-00	CARBON	390		1/8W	
R146	1-246-787-00	CARBON	2.2K		1/8W	
R147	1-246-778-00	CARBON	390		1/8W	
R148	1-246-778-00	CARBON	390		1/8W	
R149	1-246-778-00	CARBON	390		1/8W	
R150	1-246-778-00	CARBON	390		1/8W	
R151	1-246-787-00	CARBON	2.2K		1/8W	
R152	1-246-778-00	CARBON	390		1/8W	
R153	1-246-791-00	CARBON	4.7K		1/8W	
R154	1-246-789-00	CARBON	3.3K		1/8W	
R155	1-246-795-00	CARBON	10K		1/8W	
R156	1-246-842-00	CARBON	750		1/8W	
R157	1-246-791-00	CARBON	4.7K		1/8W	
R158	1-246-786-00	CARBON	1.8K		1/8W	
R159	1-246-776-00	CARBON	270		1/8W	
R160	1-246-787-00	CARBON	2.2K		1/8W	
R161	1-246-783-00	CARBON	1K		1/8W	
R162	1-246-823-00	CARBON	20		1/8W	
R163	1-246-792-00	CARBON	5.6K		1/8W	
R164	1-246-792-00	CARBON	5.6K		1/8W	
R165	1-246-787-00	CARBON	2.2K		1/8W	
R166	1-246-793-00	CARBON	6.8K		1/8W	
R167	1-246-783-00	CARBON	1K		1/8W	
R168	1-246-795-00	CARBON	10K		1/8W	
R169	1-246-781-00	CARBON	680		1/8W	
R170	1-246-804-00	CARBON	56K		1/8W	
R171	1-246-795-00	CARBON	10K		1/8W	
R172	1-246-804-00	CARBON	56K		1/8W	
R173	1-246-789-00	CARBON	3.3K		1/8W	
R174	1-246-794-00	CARBON	8.2K		1/8W	
R175	1-246-783-00	CARBON	1K		1/8W	
R176	1-246-782-00	CARBON	820		1/8W	
R177	1-246-785-00	CARBON	1.5K		1/8W	
R178	1-246-842-00	CARBON	750		1/8W	
R179	1-246-777-00	CARBON	330		1/8W	
R180	1-246-804-00	CARBON	56K		1/8W	
R181	1-246-795-00	CARBON	10K		1/8W	
R182	1-246-783-00	CARBON	1K		1/8W	
R183	1-246-793-00	CARBON	6.8K		1/8W	
R184	1-246-786-00	CARBON	1.8K		1/8W	
R185	1-246-811-00	CARBON	220K		1/8W	
R186	1-246-852-00	CARBON	5.1K		1/8W	
R187	1-246-795-00	CARBON	10K		1/8W	
R188	1-246-802-00	CARBON	39K		1/8W	
R189	1-246-787-00	CARBON	2.2K		1/8W	
R190	1-246-789-00	CARBON	3.3K		1/8W	
R191	1-246-860-00	CARBON	24K		1/8W	
R192	1-246-801-00	CARBON	33K		1/8W	
R193	1-246-784-00	CARBON	1.2K		1/8W	
R194	1-246-797-00	CARBON	15K		1/8W	
R195	1-246-795-00	CARBON	10K		1/8W	
R196	1-246-778-00	CARBON	390		1/8W	
R197	1-246-770-00	CARBON	82		1/8W	
R198	1-246-771-00	CARBON	100		1/8W	
R199	1-246-779-00	CARBON	470		1/8W	
R200	1-244-857-00	CARBON	220	5%	1/2W	
R201	1-246-799-00	CARBON	22K		1/8W	
R202	1-246-795-00	CARBON	10K		1/8W	
R203	1-246-801-00	CARBON	33K		1/8W	
R204	1-246-811-00	CARBON	220K		1/8W	
R205	1-246-811-00	CARBON	220K		1/8W	
R206	1-246-811-00	CARBON	220K		1/8W	
R207	1-246-775-00	CARBON	220		1/8W	
R208	1-246-828-00	CARBON	51		1/8W	
R209	1-246-840-00	CARBON	510		1/8W	
R214	1-246-851-00	CARBON	4.3K		1/8W	
R215	1-246-802-00	CARBON	39K		1/8W	
R216	1-246-783-00	CARBON	1K		1/8W	
R217	1-246-789-00	CARBON	3.3K		1/8W	
R218	1-246-795-00	CARBON	10K		1/8W	
R219	1-246-792-00	CARBON	5.6K		1/8W	
R220	1-246-796-00	CARBON	12K		1/8W	
R221	1-246-852-00	CARBON	5.1K		1/8W	
R222	1-246-779-00	CARBON	470		1/8W	
R223	1-246-783-00	CARBON	1K		1/8W	
R224	1-246-780-00	CARBON	560		1/8W	
R225	1-246-804-00	CARBON	56K		1/8W	
R226	1-246-779-00	CARBON	470		1/8W	
R227	1-246-809-00	CARBON	150K		1/8W	
R228	1-246-798-00	CARBON	18K		1/8W	
R229	1-246-805-00	CARBON	68K		1/8W	
R230	1-246-789-00	CARBON	3.3K		1/8W	
R231	1-246-843-00	CARBON	910		1/8W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R232	1-246-777-00	CARBON	330		1/8W	
R233	1-246-847-00	CARBON	2K		1/8W	
R234	1-246-799-00	CARBON	22K		1/8W	
R236	1-246-789-00	CARBON	3.3K		1/8W	
R242	1-246-779-00	CARBON	470		1/8W	
R243	1-246-855-00	CARBON	9.1K		1/8W	
R244	1-246-785-00	CARBON	1.5K		1/8W	
R245	1-246-791-00	CARBON	4.7K		1/8W	
R246	1-246-783-00	CARBON	1K		1/8W	
R247	1-246-807-00	CARBON	100K		1/8W	
R248	1-246-847-00	CARBON	2K		1/8W	
R249	1-246-799-00	CARBON	22K		1/8W	
R250	1-246-787-00	CARBON	2.2K		1/8W	
R251	1-246-863-00	CARBON	43K		1/8W	
R252	1-246-787-00	CARBON	2.2K		1/8W	
R253	1-246-801-00	CARBON	33K		1/8W	
R254	1-246-779-00	CARBON	470		1/8W	
R255	1-246-797-00	CARBON	15K		1/8W	
R256	1-246-789-00	CARBON	3.3K		1/8W	
R257	1-246-779-00	CARBON	470		1/8W	
R258	1-246-777-00	CARBON	330		1/8W	
R259	1-246-797-00	CARBON	15K		1/8W	
R260	1-246-851-00	CARBON	4.3K		1/8W	
R261	1-246-841-00	CARBON	620		1/8W	
R262	1-246-837-00	CARBON	300		1/8W	
R263	1-246-783-00	CARBON	1K		1/8W	
R264	1-246-783-00	CARBON	1K		1/8W	
R265	1-246-779-00	CARBON	470		1/8W	
R266	1-246-777-00	CARBON	330		1/8W	
R267	1-246-843-00	CARBON	910		1/8W	
R268	1-246-795-00	CARBON	10K		1/8W	
R269	1-246-788-00	CARBON	2.7K		1/8W	
R270	1-246-799-00	CARBON	22K		1/8W	
R271	1-246-794-00	CARBON	8.2K		1/8W	
R272	1-246-791-00	CARBON	4.7K		1/8W	
R273	1-246-807-00	CARBON	100K		1/8W	
R274	1-246-783-00	CARBON	1K		1/8W	
R275	1-246-783-00	CARBON	1K		1/8W	
R278	1-246-773-00	CARBON	150		1/8W	
R279	1-246-780-00	CARBON	560		1/8W	
R280	1-246-779-00	CARBON	470		1/8W	
R281	1-246-847-00	CARBON	2K		1/8W	
R282	1-246-795-00	CARBON	10K		1/8W	
R284	1-246-467-00	CARBON	560	5%	1/4W	
R285	1-246-780-00	CARBON	560		1/8W	
R299	1-246-808-00	CARBON	120K		1/8W	
R300	1-246-838-00	CARBON	360		1/8W	
R301	1-246-783-00	CARBON	1K		1/8W	
R401	1-246-805-00	CARBON	68K		1/8W	
R402	1-246-805-00	CARBON	68K		1/8W	
R403	1-246-457-00	CARBON	220	5%	1/4W	
R404	1-246-775-00	CARBON	220		1/8W	

Ref.No.	Part No.	Description	Remark

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV001	1-226-851-00	RES, ADJ, CARBON 10K	
RV002	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K	
RV003	1-226-854-00	RES, ADJ, CARBON 100K	
RV004	1-226-846-00	RES, ADJ, CARBON 470	
RV005	1-226-847-00	RES, ADJ, CARBON 1K	
RV006	1-226-853-00	RES, ADJ, CARBON 47K	
RV007	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV008	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV009	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV010	1-226-847-00	RES, ADJ, CARBON 1K	
RV011	1-226-847-00	RES, ADJ, CARBON 1K	
RV012	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV013	1-226-852-00	RES, ADJ, CARBON 22K	
RV014	1-226-851-00	RES, ADJ, CARBON 10K	
RV015	1-226-846-00	RES, ADJ, CARBON 470	
RV016	1-226-847-00	RES, ADJ, CARBON 1K	
RV017	1-226-847-00	RES, ADJ, CARBON 1K	
RV018	1-226-857-00	RES, ADJ, CARBON 470K	
RV019	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV020	1-226-851-00	RES, ADJ, CARBON 10K	
RV021	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV022	1-226-845-31	RES, ADJ, CARBON 330	
RV023	1-226-850-00	RES, ADJ, CARBON 4.7K	

SWITCH

Ref.No.	Part No.	Description	Remark
SW001	1-553-831-00	SWITCH, SLIDE	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T001	1-409-321-00	COIL, TRAP	
T002	1-408-673-00	COIL, EQT	
T003	1-426-093-00	COIL, REC C BPT	
T004	1-408-672-00	COIL, BAT	
T005	1-408-671-00	COIL, PST	
T006	1-406-010-00	COIL, OSC	
T007	1-405-803-00	COIL, OSC	
T008	1-426-064-00	COIL (BPT)	
T009	1-411-110-00	COIL (TUNING-T)	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X001	1-527-345-00	CRYSTAL, OSC	
X002	1-527-353-00	CRYSTAL, OSC	

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♠:A-6713-145-A SS-9 BOARD, COMPLETE
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♠:3-655-214-00 CLIP, CABLE

CAPACITOR

Ref.No.	Part No.	Description			Remark
C001	1-101-006-00	CERAMIC	0.047MF		50V
C002	1-123-901-00	ELECT	2.2MF	20%	50V

When indicating parts by reference number, please include the board name.

SS-9

Ref.No.	Part No.	Description			Remark
C004	1-130-474-00	MYLAR	0.0018MF	5%	50V
C005	1-123-379-00	ELECT	0.47MF	20%	50V
C006	1-101-006-00	CERAMIC	0.047MF		50V
C007	1-127-468-00	ELECT(SOLID)	0.22MF	5%	16V
C008	1-127-468-00	ELECT(SOLID)	0.22MF	5%	16V
C009	1-130-477-00	MYLAR	0.0033MF	5%	50V
C012	1-123-356-00	ELECT	10MF	20%	16V
C013	1-123-296-00	ELECT	220MF	20%	6.3V
C014	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C015	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C016	1-127-470-00	ELECT(SOLID)	0.47MF	5%	16V
C017	1-123-328-00	ELECT	4.7MF	20%	25V
C018	1-131-413-00	ELECT(SOLID)	1MF	10%	16V
C019	1-101-006-00	CERAMIC	0.047MF		50V
C020	1-123-901-00	ELECT	2.2MF	20%	50V
C022	1-101-006-00	CERAMIC	0.047MF		50V
C023	1-123-296-00	ELECT	220MF	20%	6.3V
C024	1-123-356-00	ELECT	10MF	20%	16V
C025	1-123-356-00	ELECT	10MF	20%	16V
C026	1-123-333-00	ELECT	100MF	20%	16V
C027	1-123-298-00	ELECT	470MF	20%	6.3V
C028	1-161-265-00	CERAMIC	33PF	5%	50V
C029	1-161-494-00	CERAMIC	0.022MF	30%	25V
C030	1-161-021-00	CERAMIC	0.047MF	10%	25V
C031	1-123-381-00	ELECT	2.2MF	20%	50V
C032	1-123-332-00	ELECT	47MF	20%	16V
C033	1-123-330-00	ELECT	22MF	20%	16V
C034	1-123-381-00	ELECT	2.2MF	20%	50V
C040	1-101-006-00	CERAMIC	0.047MF		50V
C041	1-123-356-00	ELECT	10MF	20%	16V
C042	1-130-487-00	MYLAR	0.022MF	5%	50V
C043	1-130-487-00	MYLAR	0.022MF	5%	50V
C044	1-127-433-51	ELECT(SOLID)	0.1MF	10%	16V
C045	1-161-323-00	CERAMIC	0.001MF	10%	50V
C046	1-101-006-00	CERAMIC	0.047MF		50V
C047	1-123-901-00	ELECT	2.2MF	20%	50V
C049	1-101-006-00	CERAMIC	0.047MF		50V
C050	1-127-437-51	ELECT(SOLID)	0.47MF	10%	16V
C051	1-123-333-00	ELECT	100MF	20%	16V
C052	1-130-495-00	MYLAR	0.1MF	5%	50V
C053	1-161-323-00	CERAMIC	0.001MF	10%	50V
C054	1-131-413-00	ELECT(SOLID)	1MF	10%	16V
C055	1-123-379-00	ELECT	0.47MF	20%	50V
C056	1-101-006-00	CERAMIC	0.047MF		50V
C057	1-161-330-51	CERAMIC	0.01MF	30%	25V
C058	1-161-025-00	CERAMIC	0.1MF	10%	25V
C059	1-161-323-00	CERAMIC	0.001MF	10%	50V
C060	1-127-470-00	ELECT(SOLID)	0.47MF	5%	16V
C061	1-131-415-00	ELECT(SOLID)	0.68MF	10%	16V
C062	1-123-323-00	ELECT	470MF	20%	16V
C063	1-127-437-51	ELECT(SOLID)	0.47MF	10%	16V
C064	1-123-382-00	ELECT	3.3MF	20%	50V
C065	1-123-318-00	ELECT	33MF	20%	16V

Ref.No.	Part No.	Description			Remark
C066	1-130-026-00	FILM	0.0047MF	5%	50V
C067	1-161-323-00	CERAMIC	0.001MF	10%	50V
C068	1-102-978-00	CERAMIC	220PF	5%	50V
C069	1-161-323-00	CERAMIC	0.001MF	10%	50V
C070	1-123-328-00	ELECT	4.7MF	20%	25V
C071	1-161-313-00	CERAMIC	150PF	10%	50V
C072	1-108-573-00	MYLAR	0.0056MF	5%	50V
C073	1-161-772-11	CERAMIC	0.1MF	10%	25V
C075	1-123-332-00	ELECT	47MF	20%	16V
C076	1-123-381-00	ELECT	2.2MF	20%	50V
C081	1-101-004-00	CERAMIC	0.01MF		50V
C501	1-102-980-00	CERAMIC	270PF	5%	50V
C502	1-102-114-00	CERAMIC	470PF	10%	50V
C504	1-123-380-00	ELECT	1MF	20%	50V
C505	1-123-379-00	ELECT	0.47MF	20%	50V
C506	1-123-380-00	ELECT	1MF	20%	50V
C507	1-123-380-00	ELECT	1MF	20%	50V
C508	1-123-356-00	ELECT	10MF	20%	16V
C510	1-161-323-00	CERAMIC	0.001MF	10%	50V
C511	1-161-323-00	CERAMIC	0.001MF	10%	50V

FILTER

CF501	1-527-532-00	OSCILLATOR, CERAMIC

CONNECTOR

CN002♠:	1-508-742-00	PIN, CONNECTOR 3P
CN003♠:	1-508-742-00	PIN, CONNECTOR 3P
CN004♠:	1-508-742-00	PIN, CONNECTOR 3P
CN005♠:	1-508-742-00	PIN, CONNECTOR 3P
CN006♠:	1-508-845-00	PIN, CONNECTOR 6P
CN007♠:	1-508-744-00	PIN, CONNECTOR 10P
CN008♠:	1-508-744-00	PIN, CONNECTOR 10P
CN009	1-508-910-00	PIN, CONNECTOR 12P
CN010♠:	1-508-910-00	PIN, CONNECTOR 12P
CN011♠:	1-508-742-00	PIN, CONNECTOR 3P

DIODE

D001	8-719-815-55	DIODE 1S1555
D002	8-719-815-55	DIODE 1S1555
D003	8-719-815-55	DIODE 1S1555
D004	8-719-815-55	DIODE 1S1555
D007	8-719-815-55	DIODE 1S1555
D008	8-719-815-55	DIODE 1S1555
D009	8-719-815-55	DIODE 1S1555
D010	8-719-815-55	DIODE 1S1555
D019	8-719-100-68	DIODE RD13E-B2
D020	8-719-815-55	DIODE 1S1555
D021	8-719-100-38	DIODE RD6.2E-B2
D022	8-719-815-55	DIODE 1S1555
D024	8-719-815-55	DIODE 1S1555
D028	=>8-719-815-55	DIODE 1S1555
D029	=>8-719-815-55	DIODE 1S1555
D030	8-719-815-55	DIODE 1S1555

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
D031	8-719-815-55	DIODE 1S1555	
D032	8-719-815-55	DIODE 1S1555	
D501	8-719-200-02	DIODE 10E2	
D502	8-719-200-02	DIODE 10E2	
D503	8-719-815-55	DIODE 1S1555	
D504	8-719-100-44	DIODE RD7.5E-B2	
D506	8-719-815-55	DIODE 1S1555	
D507	8-719-100-35	DIODE RD5.6E-B2	
D508	8-719-815-55	DIODE 1S1555	
D509	8-719-100-44	DIODE RD7.5E-B2	
D510	8-719-815-55	DIODE 1S1555	
D511	8-719-815-55	DIODE 1S1555	
D512	8-719-815-55	DIODE 1S1555	
D513	8-719-815-55	DIODE 1S1555	
D515	8-719-815-55	DIODE 1S1555	
D516	8-719-815-55	DIODE 1S1555	
D517	8-719-118-07	DIODE RD18E-B	

IC

Ref.No.	Part No.	Description	Remark
IC001	8-751-430-00	IC CX-143A	
IC002	8-759-271-20	IC TA7120P	
IC003	8-759-601-86	IC CX-186	
IC004	8-759-100-06	IC UPC4556C	
IC501	8-759-100-38	IC UPD553C-167	

JUMPER

Ref.No.	Part No.	Description	Remark
JW077	1-217-587-00	RES, SHORT 0.02	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	=>8-729-245-83	TRANSISTOR 2SC2458	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	=>8-729-245-83	TRANSISTOR 2SC2458	
Q007	=>8-729-245-83	TRANSISTOR 2SC2458	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	=>8-729-117-54	TRANSISTOR 2SA1175	
Q010	=>8-729-117-54	TRANSISTOR 2SA1175	
Q014	=>8-729-245-83	TRANSISTOR 2SC2458	
Q015	=>8-729-245-83	TRANSISTOR 2SC2458	
Q016	8-729-113-32	TRANSISTOR 2SB733	
Q017	=>8-729-117-54	TRANSISTOR 2SA1175	
Q018	=>8-729-245-83	TRANSISTOR 2SC2458	
Q019	=>8-729-117-54	TRANSISTOR 2SA1175	
Q028	=>8-729-245-83	TRANSISTOR 2SC2458	
Q029	=>8-729-245-83	TRANSISTOR 2SC2458	
Q030	=>8-729-117-54	TRANSISTOR 2SA1175	
Q032	=>8-729-117-54	TRANSISTOR 2SA1175	
Q033	=>8-729-245-83	TRANSISTOR 2SC2458	
Q501	8-729-117-54	TRANSISTOR 2SA1175	
Q502	=>8-729-245-83	TRANSISTOR 2SC2458	
Q503	=>8-729-245-83	TRANSISTOR 2SC2458	
Q504	=>8-729-245-83	TRANSISTOR 2SC2458	
Q505	=>8-729-245-83	TRANSISTOR 2SC2458	
Q506	=>8-729-245-83	TRANSISTOR 2SC2458	
Q507	=>8-729-245-83	TRANSISTOR 2SC2458	
Q508	=>8-729-245-83	TRANSISTOR 2SC2458	
Q509	=>8-729-117-54	TRANSISTOR 2SA1175	
Q510	8-729-113-32	TRANSISTOR 2SB733	
Q511	=>8-729-117-54	TRANSISTOR 2SA1175	
Q512	=>8-729-117-54	TRANSISTOR 2SA1175	
Q513	=>8-729-117-54	TRANSISTOR 2SA1175	
Q514	=>8-729-374-02	TRANSISTOR 2SB740	
Q515	=>8-729-245-83	TRANSISTOR 2SC2458	
Q516	=>8-729-245-83	TRANSISTOR 2SC2458	
Q517	=>8-729-245-83	TRANSISTOR 2SC2458	
Q518	=>8-729-245-83	TRANSISTOR 2SC2458	
Q519	=>8-729-245-83	TRANSISTOR 2SC2458	
Q520	=>8-729-245-83	TRANSISTOR 2SC2458	
Q521	=>8-729-245-83	TRANSISTOR 2SC2458	
Q522	=>8-729-245-83	TRANSISTOR 2SC2458	
Q523	=>8-729-245-83	TRANSISTOR 2SC2458	
Q526	=>8-729-117-54	TRANSISTOR 2SA1175	
Q527	=>8-729-245-83	TRANSISTOR 2SC2458	
Q528	=>8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-246-475-00	CARBON	1.2K	5%	1/4W	
R002	1-246-497-00	CARBON	10K	5%	1/4W	
R003	1-246-509-00	CARBON	33K	5%	1/4W	
R004	1-246-491-00	CARBON	5.6K	5%	1/4W	
R005	1-246-489-00	CARBON	4.7K	5%	1/4W	
R006	1-246-545-00	CARBON	1M	5%	1/4W	
R007	1-246-507-00	CARBON	27K	5%	1/4W	
R008	1-246-493-00	CARBON	6.8K	5%	1/4W	
R009	1-246-493-00	CARBON	6.8K	5%	1/4W	
R010	1-246-507-00	CARBON	27K	5%	1/4W	
R011	1-246-517-00	CARBON	68K	5%	1/4W	
R012	1-246-473-00	CARBON	1K	5%	1/4W	
R013	1-246-507-00	CARBON	27K	5%	1/4W	
R014	1-246-520-00	CARBON	91K	5%	1/4W	
R015	1-246-485-00	CARBON	3.3K	5%	1/4W	
R019	1-246-485-00	CARBON	3.3K	5%	1/4W	
R020	1-246-485-00	CARBON	3.3K	5%	1/4W	
R021	1-246-497-00	CARBON	10K	5%	1/4W	
R022	1-246-501-00	CARBON	15K	5%	1/4W	
R023	1-246-509-00	CARBON	33K	5%	1/4W	
R024	1-246-489-00	CARBON	4.7K	5%	1/4W	
R025	1-246-519-00	CARBON	82K	5%	1/4W	
R026	1-246-474-00	CARBON	1.1K	5%	1/4W	
R027	1-246-509-00	CARBON	33K	5%	1/4W	
R028	1-246-501-00	CARBON	15K	5%	1/4W	
R029	1-246-505-00	CARBON	22K	5%	1/4W	
R030	1-246-469-00	CARBON	680	5%	1/4W	
R031	1-246-501-00	CARBON	15K	5%	1/4W	
R032	1-246-497-00	CARBON	10K	5%	1/4W	
R033	1-246-535-00	CARBON	390K	5%	1/4W	

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
R034	1-246-497-00	CARBON	10K	5%	1/4W	
R035	1-246-459-00	CARBON	270	5%	1/4W	
R036	1-246-479-00	CARBON	1.8K	5%	1/4W	
R038	1-246-504-00	CARBON	20K	5%	1/4W	
R047	1-246-489-00	CARBON	4.7K	5%	1/4W	
R048	1-246-514-00	CARBON	51K	5%	1/4W	
R049	1-246-455-00	CARBON	180	5%	1/4W	
R050	1-246-477-00	CARBON	1.5K	5%	1/4W	
R051	1-246-473-00	CARBON	1K	5%	1/4W	
R052	1-246-511-00	CARBON	39K	5%	1/4W	
R053	1-246-501-00	CARBON	15K	5%	1/4W	
R054	1-246-473-00	CARBON	1K	5%	1/4W	
R055	1-246-515-00	CARBON	56K	5%	1/4W	
R056	1-246-527-00	CARBON	180K	5%	1/4W	
R057	1-246-471-00	CARBON	820	5%	1/4W	
R058	1-246-477-00	CARBON	1.5K	5%	1/4W	
R059	1-246-462-00	CARBON	360	5%	1/4W	
R060	1-246-483-00	CARBON	2.7K	5%	1/4W	
R061	1-246-485-00	CARBON	3.3K	5%	1/4W	
R062	1-246-443-00	CARBON	56	5%	1/4W	
R063	1-246-501-00	CARBON	15K	5%	1/4W	
R064	1-246-521-00	CARBON	100K	5%	1/4W	
R065	1-246-495-00	CARBON	8.2K	5%	1/4W	
R066	1-246-513-00	CARBON	47K	5%	1/4W	
R067	1-246-505-00	CARBON	22K	5%	1/4W	
R068	1-246-507-00	CARBON	27K	5%	1/4W	
R069	1-246-449-00	CARBON	100	5%	1/4W	
R070	1-246-497-00	CARBON	10K	5%	1/4W	
R071	1-246-497-00	CARBON	10K	5%	1/4W	
R091	1-246-520-00	CARBON	91K	5%	1/4W	
R092	1-246-508-00	CARBON	30K	5%	1/4W	
R093	1-246-511-00	CARBON	39K	5%	1/4W	
R094	1-246-511-00	CARBON	39K	5%	1/4W	
R095	1-246-493-00	CARBON	6.8K	5%	1/4W	
R096	1-246-493-00	CARBON	6.8K	5%	1/4W	
R097	1-202-472-00	COMPOSITION	5.1M	5%	1/4W	
R098	1-246-514-00	CARBON	51K	5%	1/4W	
R099	1-246-489-00	CARBON	4.7K	5%	1/4W	
R101	1-246-425-00	CARBON	10	5%	1/4W	
R102	1-214-161-00	METAL	16K	1%	1/4W	
R103	1-246-524-00	CARBON	130K	5%	1/4W	
R104	1-246-509-00	CARBON	33K	5%	1/4W	
R105	1-246-495-00	CARBON	8.2K	5%	1/4W	
R106	1-246-523-00	CARBON	120K	5%	1/4W	
R107	1-246-497-00	CARBON	10K	5%	1/4W	
R108	1-246-519-00	CARBON	82K	5%	1/4W	
R109	1-246-501-00	CARBON	15K	5%	1/4W	
R110	1-246-532-00	CARBON	300K	5%	1/4W	
R111	1-246-465-00	CARBON	470	5%	1/4W	
R112	1-246-479-00	CARBON	1.8K	5%	1/4W	
R113	1-246-489-00	CARBON	4.7K	5%	1/4W	
R114	1-246-503-00	CARBON	18K	5%	1/4W	
R115	1-246-473-00	CARBON	1K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R116	1-246-509-00	CARBON	33K	5%	1/4W	
R117	1-246-496-00	CARBON	9.1K	5%	1/4W	
R118	1-246-496-00	CARBON	9.1K	5%	1/4W	
R119	1-246-509-00	CARBON	33K	5%	1/4W	
R120	1-246-442-00	CARBON	51	5%	1/4W	
R121	1-246-509-00	CARBON	33K	5%	1/4W	
R122	1-246-503-00	CARBON	18K	5%	1/4W	
R123	1-246-497-00	CARBON	10K	5%	1/4W	
R125	1-246-527-00	CARBON	180K	5%	1/4W	
R126	1-246-497-00	CARBON	10K	5%	1/4W	
R128	1-246-499-00	CARBON	12K	5%	1/4W	
R129	1-246-495-00	CARBON	8.2K	5%	1/4W	
R130	1-246-517-00	CARBON	68K	5%	1/4W	
R131	1-246-501-00	CARBON	15K	5%	1/4W	
R132	1-246-501-00	CARBON	15K	5%	1/4W	
R134	1-246-477-00	CARBON	1.5K	5%	1/4W	
R135	1-246-535-00	CARBON	390K	5%	1/4W	
R136	1-246-497-00	CARBON	10K	5%	1/4W	
R137	1-246-497-00	CARBON	10K	5%	1/4W	
R139	1-202-472-00	COMPOSITION	5.1M	5%	1/4W	
R143	1-246-473-00	CARBON	1K	5%	1/4W	
R144	1-246-521-00	CARBON	100K	5%	1/4W	
R145	1-246-499-00	CARBON	12K	5%	1/4W	
R146	1-246-513-00	CARBON	47K	5%	1/4W	
R147	1-246-527-00	CARBON	180K	5%	1/4W	
R148	1-246-497-00	CARBON	10K	5%	1/4W	
R149	1-246-509-00	CARBON	33K	5%	1/4W	
R150	1-246-542-00	CARBON	750K	5%	1/4W	
R151	1-246-473-00	CARBON	1K	5%	1/4W	
R153	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R501	1-246-485-00	CARBON	3.3K	5%	1/4W	
R502	1-246-521-00	CARBON	100K	5%	1/4W	
R503	1-246-497-00	CARBON	10K	5%	1/4W	
R504	1-246-521-00	CARBON	100K	5%	1/4W	
R505	1-246-497-00	CARBON	10K	5%	1/4W	
R506	1-246-521-00	CARBON	100K	5%	1/4W	
R507	1-246-497-00	CARBON	10K	5%	1/4W	
R508	1-246-521-00	CARBON	100K	5%	1/4W	
R509	1-246-497-00	CARBON	10K	5%	1/4W	
R510	1-246-521-00	CARBON	100K	5%	1/4W	
R511	1-246-495-00	CARBON	8.2K	5%	1/4W	
R512	1-246-492-00	CARBON	6.2K	5%	1/4W	
R513	1-246-521-00	CARBON	100K	5%	1/4W	
R514	1-246-505-00	CARBON	22K	5%	1/4W	
R515	1-246-521-00	CARBON	100K	5%	1/4W	
R516	1-246-497-00	CARBON	10K	5%	1/4W	
R517	1-246-521-00	CARBON	100K	5%	1/4W	
R518	1-246-497-00	CARBON	10K	5%	1/4W	
R519	1-246-481-00	CARBON	2.2K	5%	1/4W	
R520	1-246-481-00	CARBON	2.2K	5%	1/4W	
R521	1-246-497-00	CARBON	10K	5%	1/4W	
R522	1-246-515-00	CARBON	56K	5%	1/4W	
R523	1-246-515-00	CARBON	56K	5%	1/4W	

When indicating parts by reference number, please include the board name.

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				Remark
R524	1-246-497-00	CARBON	10K	5%	1/4W	
R525	1-246-481-00	CARBON	2.2K	5%	1/4W	
R526	1-246-481-00	CARBON	2.2K	5%	1/4W	
R527	1-246-481-00	CARBON	2.2K	5%	1/4W	
R528	1-246-481-00	CARBON	2.2K	5%	1/4W	
R529	1-246-481-00	CARBON	2.2K	5%	1/4W	
R530	1-246-481-00	CARBON	2.2K	5%	1/4W	
R531	1-246-497-00	CARBON	10K	5%	1/4W	
R532	1-246-497-00	CARBON	10K	5%	1/4W	
R533	1-246-505-00	CARBON	22K	5%	1/4W	
R534	1-246-505-00	CARBON	22K	5%	1/4W	
R536	1-246-505-00	CARBON	22K	5%	1/4W	
R537	1-246-497-00	CARBON	10K	5%	1/4W	
R538	1-246-505-00	CARBON	22K	5%	1/4W	
R539	1-246-505-00	CARBON	22K	5%	1/4W	
R540	1-246-475-00	CARBON	1.2K	5%	1/4W	
R541	1-246-497-00	CARBON	10K	5%	1/4W	
R542	1-246-505-00	CARBON	22K	5%	1/4W	
R543	1-246-505-00	CARBON	22K	5%	1/4W	
R544	1-246-491-00	CARBON	5.6K	5%	1/4W	
R545	1-246-497-00	CARBON	10K	5%	1/4W	
R555	1-246-505-00	CARBON	22K	5%	1/4W	
R556	1-246-505-00	CARBON	22K	5%	1/4W	
R557	1-246-505-00	CARBON	22K	5%	1/4W	
R558	1-246-497-00	CARBON	10K	5%	1/4W	
R559	1-246-505-00	CARBON	22K	5%	1/4W	
R560	1-246-505-00	CARBON	22K	5%	1/4W	
R561	1-246-505-00	CARBON	22K	5%	1/4W	
R562	1-246-497-00	CARBON	10K	5%	1/4W	
R563	1-246-515-00	CARBON	56K	5%	1/4W	
R564	1-246-470-00	CARBON	750	5%	1/4W	
R565	1-246-505-00	CARBON	22K	5%	1/4W	
R566	1-246-505-00	CARBON	22K	5%	1/4W	
R567	1-246-487-00	CARBON	3.9K	5%	1/4W	
R568	1-246-497-00	CARBON	10K	5%	1/4W	
R569	1-246-473-00	CARBON	1K	5%	1/4W	
R570	1-246-519-00	CARBON	82K	5%	1/4W	
R571	1-246-505-00	CARBON	22K	5%	1/4W	
R572	1-246-519-00	CARBON	82K	5%	1/4W	
R573	1-246-505-00	CARBON	22K	5%	1/4W	
R574	1-246-519-00	CARBON	82K	5%	1/4W	
R575	1-246-505-00	CARBON	22K	5%	1/4W	
R576	1-246-519-00	CARBON	82K	5%	1/4W	
R577	1-246-505-00	CARBON	22K	5%	1/4W	
R578	1-246-519-00	CARBON	82K	5%	1/4W	
R579	1-246-505-00	CARBON	22K	5%	1/4W	
R580	1-246-519-00	CARBON	82K	5%	1/4W	
R581	1-246-505-00	CARBON	22K	5%	1/4W	
R582	1-246-497-00	CARBON	10K	5%	1/4W	
R583	1-246-497-00	CARBON	10K	5%	1/4W	
R584	1-246-473-00	CARBON	1K	5%	1/4W	
R585	1-246-471-00	CARBON	820	5%	1/4W	
R586	1-246-481-00	CARBON	2.2K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R587	1-246-481-00	CARBON	2.2K	5%	1/4W	
R589	1-246-477-00	CARBON	1.5K	5%	1/4W	
R590	1-246-505-00	CARBON	22K	5%	1/4W	
R591	1-246-505-00	CARBON	22K	5%	1/4W	
R592	1-246-495-00	CARBON	8.2K	5%	1/4W	
R593	1-246-483-00	CARBON	2.7K	5%	1/4W	
R594	1-246-505-00	CARBON	22K	5%	1/4W	
R595	1-246-521-00	CARBON	100K	5%	1/4W	
R596	1-246-497-00	CARBON	10K	5%	1/4W	
R597	1-246-505-00	CARBON	22K	5%	1/4W	
R598	1-246-505-00	CARBON	22K	5%	1/4W	
R599	1-246-505-00	CARBON	22K	5%	1/4W	
R600	1-246-505-00	CARBON	22K	5%	1/4W	
R601	1-246-497-00	CARBON	10K	5%	1/4W	
R602	1-246-521-00	CARBON	100K	5%	1/4W	
R603	1-246-505-00	CARBON	22K	5%	1/4W	
R604	1-246-505-00	CARBON	22K	5%	1/4W	
R605	1-246-513-00	CARBON	47K	5%	1/4W	
R606	1-246-497-00	CARBON	10K	5%	1/4W	
R607	1-246-515-00	CARBON	56K	5%	1/4W	
R612	1-246-505-00	CARBON	22K	5%	1/4W	
R613	1-246-505-00	CARBON	22K	5%	1/4W	
R614	1-246-505-00	CARBON	22K	5%	1/4W	
R615	1-246-497-00	CARBON	10K	5%	1/4W	
R616	1-246-505-00	CARBON	22K	5%	1/4W	
R617	1-246-505-00	CARBON	22K	5%	1/4W	
R618	1-246-473-00	CARBON	1K	5%	1/4W	
R620	1-246-513-00	CARBON	47K	5%	1/4W	
R621	1-246-537-00	CARBON	470K	5%	1/4W	
R622	1-246-537-00	CARBON	470K	5%	1/4W	
R623	1-246-521-00	CARBON	100K	5%	1/4W	
R624	1-246-497-00	CARBON	10K	5%	1/4W	
R625	1-246-521-00	CARBON	100K	5%	1/4W	
R626	1-246-537-00	CARBON	470K	5%	1/4W	
R627	1-246-515-00	CARBON	56K	5%	1/4W	

VARIABLE RESISTOR

RV001	1-226-852-00	RES, ADJ, CARBON 22K
RV004	1-226-497-00	RES, VAR, CARBON 100K
RV006	1-226-853-00	RES, ADJ, CARBON 47K
RV007	1-226-853-00	RES, ADJ, CARBON 47K
RV008	1-226-853-00	RES, ADJ, CARBON 47K
RV009	1-228-630-00	RES, ADJ, METAL GLAZE 4.7K
RV010	1-226-853-00	RES, ADJ, CARBON 47K
RV011	1-226-849-00	RES, ADJ, CARBON 3.3K

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♠:A-6728-572-A	AD-7 BOARD, COMPLETE ********************
♠:3-671-898-00	CASE (MAIN) (1), SHIELD, VA-A
♠:3-674-186-00	LID, REAR, SHIELD CASE, AD
♠:3-677-817-00	INSULATOR (AD)

When indicating parts by reference number, please include the board name.

AD-7

CAPACITOR

Ref.No.	Part No.	Description			Remark
C501	1-123-044-51	ELECT	33MF	20%	25V
C502	1-130-474-00	MYLAR	0.0018MF	5%	50V
C503	1-102-106-00	CERAMIC	100PF	10%	50V
C504	1-123-332-00	ELECT	47MF	20%	16V
C505	1-123-332-00	ELECT	47MF	20%	16V
C506	1-130-483-51	MYLAR	0.01MF	5%	50V
C507	1-123-332-00	ELECT	47MF	20%	16V
C509	1-123-617-00	ELECT	10MF	20%	16V
C510	1-102-111-00	CERAMIC	270PF	10%	50V
C511	1-123-617-00	ELECT	10MF	20%	16V
C512	1-123-330-00	ELECT	22MF	20%	16V
C513	1-130-471-00	MYLAR	0.01MF	5%	50V
C516	1-130-484-00	MYLAR	0.012MF	5%	50V
C517	1-123-328-00	ELECT	4.7MF	20%	25V
C518	1-123-328-00	ELECT	4.7MF	20%	25V
C519	1-123-382-00	ELECT	3.3MF	20%	50V
C520	1-123-382-00	ELECT	3.3MF	20%	50V
C521	1-123-617-00	ELECT	10MF	20%	16V
C522	1-123-617-00	ELECT	10MF	20%	16V
C523	1-123-617-00	ELECT	10MF	20%	16V
C524	1-123-645-00	ELECT	33MF	20%	10V
C525	1-123-607-00	ELECT	0.1MF	20%	50V
C526	1-130-492-51	MYLAR	0.056MF	5%	50V
C527	1-123-607-00	ELECT	0.1MF	20%	50V
C528	1-130-483-51	MYLAR	0.01MF	5%	50V
C529	1-130-480-00	MYLAR	0.0056MF	5%	50V
C530	1-130-471-00	MYLAR	0.01MF	5%	50V
C531	1-130-627-00	MYLAR	0.039MF	5%	50V
C532	1-123-340-00	ELECT	4.7MF	20%	35V
C533	1-123-340-00	ELECT	4.7MF	20%	35V
C534	1-123-612-00	ELECT	2.2MF	20%	50V
C535	1-123-617-00	ELECT	10MF	20%	16V
C536	1-102-110-00	CERAMIC	220PF	10%	50V
C537	1-123-612-00	ELECT	2.2MF	20%	50V
C538	1-123-333-00	ELECT	100MF	20%	16V
C539	1-123-332-00	ELECT	47MF	20%	16V
C540	1-123-332-00	ELECT	47MF	20%	16V
C541	1-130-479-00	MYLAR	0.0047MF	5%	50V
C542	1-130-477-00	MYLAR	0.0033MF	5%	50V
C543	1-129-709-00	FILM	0.0039MF	10%	630V
C544	1-123-333-00	ELECT	100MF	20%	25V
C545	1-161-005-00	CERAMIC	0.0022MF	10%	25V
C546	1-123-333-00	ELECT	100MF	20%	25V
C547	1-161-005-00	CERAMIC	0.0022MF	10%	25V
C548	1-123-617-00	ELECT	10MF	20%	16V
C549	1-101-361-00	CERAMIC	150PF	5%	50V
C550	1-123-617-00	ELECT	10MF	20%	16V
C551	1-130-471-00	MYLAR	0.01MF	5%	50V
C554	1-161-025-00	CERAMIC	0.1MF	10%	25V
C555	1-123-611-00	ELECT	1MF	20%	50V
C601	1-123-044-51	ELECT	33MF	20%	25V
C602	1-130-474-00	MYLAR	0.0018MF	5%	50V
C603	1-102-106-00	CERAMIC	100PF	10%	50V
C605	1-123-332-00	ELECT	47MF	20%	16V
C606	1-130-483-51	MYLAR	0.01MF	5%	50V
C609	1-123-617-00	ELECT	10MF	20%	16V
C610	1-102-111-00	CERAMIC	270PF	10%	50V
C611	1-123-617-00	ELECT	10MF	20%	16V
C612	1-123-330-00	ELECT	22MF	20%	16V
C613	1-130-471-00	MYLAR	0.01MF	5%	50V
C616	1-130-484-00	MYLAR	0.012MF	5%	50V
C617	1-123-328-00	ELECT	4.7MF	20%	25V
C618	1-123-328-00	ELECT	4.7MF	20%	25V
C619	1-123-382-00	ELECT	3.3MF	20%	50V
C620	1-123-382-00	ELECT	3.3MF	20%	50V
C621	1-123-617-00	ELECT	10MF	20%	16V
C622	1-123-617-00	ELECT	10MF	20%	16V
C623	1-123-617-00	ELECT	10MF	20%	16V
C625	1-123-607-00	ELECT	0.1MF	20%	50V
C626	1-130-492-51	MYLAR	0.056MF	5%	50V
C627	1-123-607-00	ELECT	0.1MF	20%	50V
C628	1-130-483-51	MYLAR	0.01MF	5%	50V
C629	1-130-480-00	MYLAR	0.0056MF	5%	50V
C630	1-130-471-00	MYLAR	0.01MF	5%	50V
C631	1-130-627-00	MYLAR	0.039MF	5%	50V
C632	1-123-340-00	ELECT	4.7MF	20%	35V
C633	1-123-340-00	ELECT	4.7MF	20%	35V
C634	1-123-612-00	ELECT	2.2MF	20%	50V
C635	1-123-617-00	ELECT	10MF	20%	16V
C636	1-102-110-00	CERAMIC	220PF	10%	50V
C637	1-123-612-00	ELECT	2.2MF	20%	50V
C638	1-123-333-00	ELECT	100MF	20%	16V
C648	1-123-617-00	ELECT	10MF	20%	16V
C649	1-101-361-00	CERAMIC	150PF	5%	50V
C650	1-123-617-00	ELECT	10MF	20%	16V
C651	1-130-471-00	MYLAR	0.01MF	5%	50V
C654	1-161-025-00	CERAMIC	0.1MF	10%	25V
C655	1-123-611-00	ELECT	1MF	20%	50V

CONNECTOR

Ref.No.	Part No.	Description
CN501	1-508-910-00	PIN, CONNECTOR 12P
CN502▲:	1-508-742-00	PIN, CONNECTOR 3P
CN503▲:	1-508-742-00	PIN, CONNECTOR 3P
CN504▲:	1-508-743-00	PIN, CONNECTOR 5P
CN505▲:	1-508-845-00	PIN, CONNECTOR 6P
CN506▲:	1-508-742-00	PIN, CONNECTOR 3P

TRIMMER

Ref.No.	Part No.	Description
CV501	1-141-225-00	CAP, TUNING, TRIMMER

DIODE

Ref.No.	Part No.	Description
D501	8-719-911-19	DIODE 1SS119
D503	8-719-911-19	DIODE 1SS119

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
D504	8-719-911-19	DIODE 1SS119	
D505	8-719-911-19	DIODE 1SS119	
D506	8-719-100-46	DIODE RD7.5E-B3	
D507	8-719-100-46	DIODE RD7.5E-B3	
D508	8-719-911-19	DIODE 1SS119	
D509	8-719-911-19	DIODE 1SS119	
D605	8-719-911-19	DIODE 1SS119	
D608	8-719-911-19	DIODE 1SS119	
		IC	
IC501	8-759-705-62	IC NJM4562D-D	
IC502	8-759-951-02	IC BA5102	
IC503	8-759-145-58	IC UPC4558C	
IC504	8-759-240-53	IC TC4053BP	
IC505	8-759-145-58	IC UPC4558C	
IC506	8-759-905-71	IC NE571N	
IC602	8-759-951-02	IC BA5102	
IC604	8-759-240-53	IC TC4053BP	
IC605	8-759-145-58	IC UPC4558C	
		COIL	
L501	1-433-237-00	TRANSFORMER, OSCILLATOR	
L502	1-408-462-21	MICRO INDUCTOR 470UH	
L503	1-231-726-00	FILTER, LOWPASS	
L504	1-408-221-00	MICRO INDUCTOR 22MMH	
L505	1-408-220-00	MICRO INDUCTOR 18MMH	
L603	1-231-726-00	FILTER, LOWPASS	
L604	1-408-221-00	MICRO INDUCTOR 22MMH	
L605	1-408-220-00	MICRO INDUCTOR 18MMH	
		TRANSISTOR	
Q501	8-729-178-54	TRANSISTOR 2SC2785	
Q502	8-729-178-54	TRANSISTOR 2SC2785	
Q503	=>8-729-374-02	TRANSISTOR 2SB740	
Q504	=>8-729-117-54	TRANSISTOR 2SA1175	
Q506	8-729-178-54	TRANSISTOR 2SC2785	
Q507	8-729-178-54	TRANSISTOR 2SC2785	
Q508	8-729-178-54	TRANSISTOR 2SC2785	
Q509	8-729-178-54	TRANSISTOR 2SC2785	
Q510	8-729-178-54	TRANSISTOR 2SC2785	
Q511	8-729-178-54	TRANSISTOR 2SC2785	
Q513	8-729-178-54	TRANSISTOR 2SC2785	
Q514	=>8-729-117-54	TRANSISTOR 2SA1175	
Q515	8-729-178-54	TRANSISTOR 2SC2785	
Q516	8-729-967-32	TRANSISTOR 2SC2673	
Q517	8-729-178-54	TRANSISTOR 2SC2785	
Q606	8-729-178-54	TRANSISTOR 2SC2785	
Q611	8-729-178-54	TRANSISTOR 2SC2785	
Q613	8-729-178-54	TRANSISTOR 2SC2785	
Q614	=>8-729-117-54	TRANSISTOR 2SA1175	
Q615	8-729-178-54	TRANSISTOR 2SC2785	

Ref.No.	Part No.	Description				Remark
		RESISTOR				
R501	1-246-759-00	CARBON	10		1/8W	
R502	1-246-807-00	CARBON	100K		1/8W	
R503	1-246-783-00	CARBON	1K		1/8W	
R504	1-246-775-00	CARBON	220		1/8W	
R505	1-247-047-00	CARBON	330K		1/8W	
R506	1-246-783-00	CARBON	1K		1/8W	
R507	1-246-786-00	CARBON	1.8K		1/8W	
R508	1-246-783-00	CARBON	1K		1/8W	
R509	1-246-787-00	CARBON	2.2K		1/8W	
R510	1-246-803-00	CARBON	47K		1/8W	
R511	1-246-795-00	CARBON	10K		1/8W	
R512	1-246-791-00	CARBON	4.7K		1/8W	
R513	1-246-791-00	CARBON	4.7K		1/8W	
R514	1-246-799-00	CARBON	22K		1/8W	
R515	1-246-798-00	CARBON	18K		1/8W	
R516	1-246-789-00	CARBON	3.3K		1/8W	
R517	1-246-797-00	CARBON	15K		1/8W	
R518	1-246-776-00	CARBON	270		1/8W	
R519	1-246-798-00	CARBON	18K		1/8W	
R520	1-246-789-00	CARBON	3.3K		1/8W	
R521	1-246-795-00	CARBON	10K		1/8W	
R522	1-246-795-00	CARBON	10K		1/8W	
R527	1-246-777-00	CARBON	330		1/8W	
R528	1-246-803-00	CARBON	47K		1/8W	
R529	1-246-799-00	CARBON	22K		1/8W	
R530	1-246-771-00	CARBON	100		1/8W	
R531	1-246-803-00	CARBON	47K		1/8W	
R532	1-246-803-00	CARBON	47K		1/8W	
R533	1-246-785-00	CARBON	1.5K		1/8W	
R534	1-246-801-00	CARBON	33K		1/8W	
R535	1-246-805-00	CARBON	68K		1/8W	
R536	1-246-807-00	CARBON	100K		1/8W	
R537	1-246-807-00	CARBON	100K		1/8W	
R538	1-246-801-00	CARBON	33K		1/8W	
R539	1-246-804-00	CARBON	56K		1/8W	
R540	1-246-801-00	CARBON	33K		1/8W	
R541	1-246-804-00	CARBON	56K		1/8W	
R542	1-246-801-00	CARBON	33K		1/8W	
R543	1-246-801-00	CARBON	33K		1/8W	
R544	1-246-787-00	CARBON	2.2K		1/8W	
R545	1-246-791-00	CARBON	4.7K		1/8W	
R546	1-246-861-00	CARBON	30K		1/8W	
R547	1-214-174-00	METAL	56K	1%	1/4W	
R548	1-214-167-00	METAL	30K	1%	1/4W	
R549	1-214-160-00	METAL	15K	1%	1/4W	
R550	1-214-160-00	METAL	15K	1%	1/4W	
R551	1-214-124-00	METAL	470	1%	1/4W	
R552	1-246-797-00	CARBON	15K		1/8W	
R553	1-246-797-00	CARBON	15K		1/8W	
R554	1-246-800-00	CARBON	27K		1/8W	
R555	1-246-799-00	CARBON	22K		1/8W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R556	1-246-807-00	CARBON	100K		1/8W	
R557	1-246-811-00	CARBON	220K		1/8W	
R558	1-246-804-00	CARBON	56K		1/8W	
R559	1-246-803-00	CARBON	47K		1/8W	
R560	1-246-863-00	CARBON	43K		1/8W	
R561	1-246-783-00	CARBON	1K		1/8W	
R565	1-246-805-00	CARBON	68K		1/8W	
R566	1-246-775-00	CARBON	220		1/8W	
R567	1-246-795-00	CARBON	10K		1/8W	
R568	1-246-799-00	CARBON	22K		1/8W	
R569	1-246-855-00	CARBON	9.1K		1/8W	
R570	1-246-789-00	CARBON	3.3K		1/8W	
R571	1-246-777-00	CARBON	330		1/8W	
R572	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F
R573	1-246-859-00	CARBON	20K		1/8W	
R574	⚠1-212-887-00	FUSIBLE	180	5%	1/4W	F
R575	1-246-785-00	CARBON	1.5K		1/8W	
R576	⚠1-212-897-00	FUSIBLE	470	5%	1/4W	F
R577	1-246-791-00	CARBON	4.7K		1/8W	
R578	1-246-771-00	CARBON	100		1/8W	
R579	1-246-801-00	CARBON	33K		1/8W	
R580	1-246-789-00	CARBON	3.3K		1/8W	
R583	1-246-783-00	CARBON	1K		1/8W	
R584	1-246-806-00	CARBON	82K		1/8W	
R585	1-246-791-00	CARBON	4.7K		1/8W	
R586	1-246-801-00	CARBON	33K		1/8W	
R588	1-246-795-00	CARBON	10K		1/8W	
R589	1-246-795-00	CARBON	10K		1/8W	
R590	1-246-787-00	CARBON	2.2K		1/8W	
R601	1-246-759-00	CARBON	10		1/8W	
R602	1-246-807-00	CARBON	100K		1/8W	
R604	1-246-775-00	CARBON	220		1/8W	
R605	1-247-047-00	CARBON	330K		1/8W	
R607	1-246-786-00	CARBON	1.8K		1/8W	
R608	1-246-783-00	CARBON	1K		1/8W	
R609	1-246-787-00	CARBON	2.2K		1/8W	
R611	1-246-795-00	CARBON	10K		1/8W	
R612	1-246-791-00	CARBON	4.7K		1/8W	
R613	1-246-791-00	CARBON	4.7K		1/8W	
R614	1-246-799-00	CARBON	22K		1/8W	
R615	1-246-798-00	CARBON	18K		1/8W	
R616	1-246-789-00	CARBON	3.3K		1/8W	
R617	1-246-797-00	CARBON	15K		1/8W	
R618	1-246-776-00	CARBON	270		1/8W	
R619	1-246-798-00	CARBON	18K		1/8W	
R620	1-246-789-00	CARBON	3.3K		1/8W	
R621	1-246-795-00	CARBON	10K		1/8W	
R622	1-246-795-00	CARBON	10K		1/8W	
R627	1-246-777-00	CARBON	330		1/8W	
R628	1-246-803-00	CARBON	47K		1/8W	
R629	1-246-799-00	CARBON	22K		1/8W	
R630	1-246-771-00	CARBON	100		1/8W	
R631	1-246-803-00	CARBON	47K		1/8W	

Ref.No.	Part No.	Description				Remark
R632	1-246-803-00	CARBON	47K		1/8W	
R633	1-246-785-00	CARBON	1.5K		1/8W	
R634	1-246-801-00	CARBON	33K		1/8W	
R635	1-246-805-00	CARBON	68K		1/8W	
R643	1-246-801-00	CARBON	33K		1/8W	
R644	1-246-787-00	CARBON	2.2K		1/8W	
R645	1-246-791-00	CARBON	4.7K		1/8W	
R646	1-246-861-00	CARBON	30K		1/8W	
R647	1-214-174-00	METAL	56K	1%	1/4W	
R648	1-214-167-00	METAL	30K	1%	1/4W	
R649	1-214-160-00	METAL	15K	1%	1/4W	
R650	1-214-160-00	METAL	15K	1%	1/4W	
R651	1-214-124-00	METAL	470	1%	1/4W	
R652	1-246-797-00	CARBON	15K		1/8W	
R653	1-246-797-00	CARBON	15K		1/8W	
R657	1-246-811-00	CARBON	220K		1/8W	
R658	1-246-804-00	CARBON	56K		1/8W	
R659	1-246-803-00	CARBON	47K		1/8W	
R660	1-246-863-00	CARBON	43K		1/8W	
R661	1-246-783-00	CARBON	1K		1/8W	
R665	1-246-805-00	CARBON	68K		1/8W	
R666	1-246-775-00	CARBON	220		1/8W	
R667	1-246-795-00	CARBON	10K		1/8W	
R668	1-246-799-00	CARBON	22K		1/8W	
R670	1-246-789-00	CARBON	3.3K		1/8W	
R686	1-246-801-00	CARBON	33K		1/8W	
R688	1-246-795-00	CARBON	10K		1/8W	
R690	1-246-787-00	CARBON	2.2K		1/8W	

VARIABLE RESISTOR

RV501	1-226-851-00	RES, ADJ, CARBON 10K
RV502	1-226-851-00	RES, ADJ, CARBON 10K
RV503	1-226-848-00	RES, ADJ, CARBON 2.2K
RV504	1-226-847-00	RES, ADJ, CARBON 1K
RV505	1-226-852-00	RES, ADJ, CARBON 22K
RV506	1-226-853-00	RES, ADJ, CARBON 47K
RV601	1-226-851-00	RES, ADJ, CARBON 10K
RV602	1-226-851-00	RES, ADJ, CARBON 10K
RV604	1-226-847-00	RES, ADJ, CARBON 1K
RV605	1-226-852-00	RES, ADJ, CARBON 22K
RV606	1-226-853-00	RES, ADJ, CARBON 47K

RELAY

RY501	1-515-323-00	RELAY

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♠:A-6721-148-A IF-26 BOARD, COMPLETE
****

♠:3-671-198-00 HOLDER, LAMP
♠:3-671-199-00 COVER, HOLDER, LAMP
♠:3-674-188-00 CASE (UPPER), SHIELD, IF
♠:3-674-189-00 CASE (LOWER), SHIELD, IF

When indicating parts by reference number, please include the board name.

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description			Remark
	♠:4-350-807-00	CASE (MAIN), SHIELD, VIF			

CAPACITOR

Ref.No.	Part No.	Description			Remark
C001	1-108-377-00	MYLAR	0.01MF	10%	100V
C002	1-123-357-00	ELECT	22MF	20%	50V
C005	1-123-369-00	ELECT	4.7MF	20%	50V
C101	1-102-529-00	CERAMIC	100PF	5%	50V
C102	1-102-653-00	CERAMIC	82PF	5%	50V
C103	1-161-335-51	CERAMIC	11PF	5%	50V
C104	1-102-523-00	CERAMIC	56PF	5%	50V
C106	1-101-004-00	CERAMIC	0.01MF		50V
C107	1-102-074-00	CERAMIC	0.001MF	10%	50V
C108	1-101-004-00	CERAMIC	0.01MF		50V
C109	1-102-074-00	CERAMIC	0.001MF	10%	50V
C110	1-101-004-00	CERAMIC	0.01MF		50V
C111	1-102-523-00	CERAMIC	56PF	5%	50V
C112	1-123-380-00	ELECT	1MF	20%	50V
C113	1-101-002-00	CERAMIC	0.0022MF		50V
C114	1-123-381-00	ELECT	2.2MF	20%	50V
C115	1-161-017-00	CERAMIC	0.022MF	10%	25V
C116	1-101-004-00	CERAMIC	0.01MF		50V
C117	1-123-380-00	ELECT	1MF	20%	50V
C118	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C119	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C120	1-123-333-00	ELECT	100MF	20%	25V
C121	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C122	1-101-005-00	CERAMIC	0.022MF		50V
C123	1-123-286-00	ELECT	0.33MF	20%	50V
C124	1-101-004-00	CERAMIC	0.01MF		50V
C125	1-108-373-00	MYLAR	0.0047MF	10%	100V
C126	1-101-005-00	CERAMIC	0.022MF		50V
C127	1-103-725-00	POLYSTYRENE	0.001MF	5%	50V
C128	1-101-005-00	CERAMIC	0.022MF		50V
C131	1-108-389-00	MYLAR	0.1MF	10%	100V
C132	1-103-737-00	POLYSTYRENE	0.0033MF	5%	50V
C133	1-102-116-00	CERAMIC	680PF	10%	50V
C134	1-101-005-00	CERAMIC	0.022MF		50V
C135	1-101-005-00	CERAMIC	0.022MF		50V
C136	1-103-725-00	POLYSTYRENE	0.001MF	5%	50V
C137	1-108-373-00	MYLAR	0.0047MF	10%	100V
C138	1-123-333-00	ELECT	100MF	20%	25V
C139	1-123-369-00	ELECT	4.7MF	20%	50V
C140	1-130-723-00	FILM	0.1MF	2%	50V
C141	1-130-723-00	FILM	0.1MF	2%	50V
C142	1-101-880-00	CERAMIC	47PF	5%	50V
C143	1-130-722-00	FILM	0.047MF	2%	50V
C144	1-130-722-00	FILM	0.047MF	2%	50V
C145	1-108-385-00	MYLAR	0.047MF	10%	100V
C146	1-108-381-00	MYLAR	0.022MF	10%	100V
C147	1-123-307-00	ELECT	100MF	20%	10V
C148	1-108-393-00	MYLAR	0.22MF	10%	100V
C149	1-108-393-00	MYLAR	0.22MF	10%	100V
C150	1-123-286-00	ELECT	0.33MF	20%	50V
C151	1-108-377-00	MYLAR	0.01MF	10%	100V
C152	1-108-377-00	MYLAR	0.01MF	10%	100V
C153	1-123-286-00	ELECT	0.33MF	20%	50V
C154	1-123-380-00	ELECT	1MF	20%	50V

FILTER

Ref.No.	Part No.	Description
CF101	1-404-134-00	TRAP, CERAMIC (5.5MHZ)
CF102	1-527-840-00	FILTER, CERAMIC
CF103	1-527-839-00	FILTER, CERAMIC

CONNECTOR

Ref.No.	Part No.	Description
CN001	♠:1-508-743-00	PIN, CONNECTOR 5P
CN002	♠:1-508-743-00	PIN, CONNECTOR 5P
CN003	♠:1-508-846-00	PIN, CONNECTOR 8P
CN004	♠:1-508-797-00	PIN, CONNECTOR 4P

JACK

Ref.No.	Part No.	Description
CNJ001	♠:1-526-575-00	SOCKET, PLUG

DIODE

Ref.No.	Part No.	Description
D001	8-719-815-55	DIODE 1S1555
D002	8-719-815-55	DIODE 1S1555
D003	8-719-815-55	DIODE 1S1555
D004	8-719-815-55	DIODE 1S1555
D005	8-719-815-55	DIODE 1S1555
D101	8-719-815-55	DIODE 1S1555
D102	8-719-815-55	DIODE 1S1555
D103	8-719-815-55	DIODE 1S1555
D104	8-719-815-55	DIODE 1S1555

FILTER

Ref.No.	Part No.	Description
F101	1-404-438-00	FILTER, SAW
F101	6-078-017-40	FILTER (G3201), SAW

IC

Ref.No.	Part No.	Description
IC001	8-759-157-40	IC UPC574J
IC101	6-066-719-10	IC TDA2541
IC102	6-066-720-40	IC TDA2546
IC103	8-759-001-20	IC TBA120UB
IC104	6-066-719-50	IC TDA2795
IC104	8-759-927-95	IC TDA2795
IC105	8-759-145-58	IC UPC4558C
IC106	6-066-719-70	IC TDA1028

COIL

Ref.No.	Part No.	Description
L001	1-407-716-00	MICRO INDUCTOR 820UH
L101	1-404-068-00	COIL, VIF
L102	1-404-068-00	COIL, VIF
L103	1-407-682-00	MICRO INDUCTOR 1.2UH
L104	1-407-681-00	MICRO INDUCTOR 1UH
L105	1-407-681-00	MICRO INDUCTOR 1UH
L106	1-407-681-00	MICRO INDUCTOR 1UH
L107	1-407-694-00	MICRO INDUCTOR 12UH

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Remark
L109	1-407-687-00	MICRO INDUCTOR 3.3UH	

NEON LAMP

Ref.No.	Part No.	Description	Remark
NL001	1-519-154-61	LAMP, NEON	
NL002	1-519-154-61	LAMP, NEON	
NL003	1-519-154-61	LAMP, NEON	
NL004	1-519-154-61	LAMP, NEON	
NL005	1-519-154-61	LAMP, NEON	
NL006	1-519-154-61	LAMP, NEON	
NL007	1-519-154-61	LAMP, NEON	
NL008	1-519-154-61	LAMP, NEON	
NL009	1-519-154-61	LAMP, NEON	
NL010	1-519-154-61	LAMP, NEON	
NL011	1-519-108-71	LAMP ASSY, NEON	
NL012	1-519-108-71	LAMP ASSY, NEON	

TUNING BLOCK

Ref.No.	Part No.	Description	Remark
PS001	1-464-230-00	TUNING BLOCK (10CH)	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	=>8-729-245-83	TRANSISTOR 2SC2458	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q004	8-729-309-06	TRANSISTOR 2SC1890A	
Q005	8-729-309-06	TRANSISTOR 2SC1890A	
Q006	8-729-309-30	TRANSISTOR 2SA893A-E06	
Q007	8-769-192-00	TRANSISTOR 2SK43-2	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-117-54	TRANSISTOR 2SA1175	
Q010	=>8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-309-06	TRANSISTOR 2SC1890A	
Q012	8-729-309-06	TRANSISTOR 2SC1890A	
Q013	=>8-729-245-83	TRANSISTOR 2SC2458	
Q101	8-765-300-00	TRANSISTOR 2SC2009	
Q102	=>8-729-245-83	TRANSISTOR 2SC2458	
Q103	8-729-213-11	TRANSISTOR 2SC2230A-G1	
Q104	=>8-729-245-83	TRANSISTOR 2SC2458	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-246-497-00	CARBON	10K	5%	1/4W	
R002	1-246-497-00	CARBON	10K	5%	1/4W	
R003	1-246-497-00	CARBON	10K	5%	1/4W	
R004	1-246-497-00	CARBON	10K	5%	1/4W	
R005	1-246-525-00	CARBON	150K	5%	1/4W	
R006	1-202-735-00	COMPOSITION	22M	10%	1/2W	
R007 ⚠	1-206-749-00	METAL	10K	5%	3W	F
R008	1-246-521-00	CARBON	100K	5%	1/4W	
R009	1-246-497-00	CARBON	10K	5%	1/4W	
R010	1-246-513-00	CARBON	47K	5%	1/4W	
R011	1-246-501-00	CARBON	15K	5%	1/4W	
R012	1-246-525-00	CARBON	150K	5%	1/4W	
R013	1-246-545-00	CARBON	1M	5%	1/4W	
R014	1-246-525-00	CARBON	150K	5%	1/4W	
R015	1-246-542-00	CARBON	750K	5%	1/4W	
R016	1-246-525-00	CARBON	150K	5%	1/4W	
R017	1-246-507-00	CARBON	27K	5%	1/4W	
R018	1-246-497-00	CARBON	10K	5%	1/4W	
R019	1-246-497-00	CARBON	10K	5%	1/4W	
R020	1-246-493-00	CARBON	6.8K	5%	1/4W	
R021	1-246-521-00	CARBON	100K	5%	1/4W	
R022	1-246-497-00	CARBON	10K	5%	1/4W	
R023	1-246-497-00	CARBON	10K	5%	1/4W	
R024	1-246-511-00	CARBON	39K	5%	1/4W	
R025	1-246-505-00	CARBON	22K	5%	1/4W	
R026	1-246-509-00	CARBON	33K	5%	1/4W	
R027	1-246-509-00	CARBON	33K	5%	1/4W	
R028	1-246-497-00	CARBON	10K	5%	1/4W	
R029	1-246-505-00	CARBON	22K	5%	1/4W	
R030	1-246-511-00	CARBON	39K	5%	1/4W	
R101	1-246-497-00	CARBON	10K	5%	1/4W	
R102	1-246-481-00	CARBON	2.2K	5%	1/4W	
R103	1-246-475-00	CARBON	1.2K	5%	1/4W	
R104	1-246-487-00	CARBON	3.9K	5%	1/4W	
R105	1-246-475-00	CARBON	1.2K	5%	1/4W	
R106	1-246-449-00	CARBON	100	5%	1/4W	
R108	1-246-509-00	CARBON	33K	5%	1/4W	
R109	1-246-477-00	CARBON	1.5K	5%	1/4W	
R110	1-246-449-00	CARBON	100	5%	1/4W	
R111	1-246-509-00	CARBON	33K	5%	1/4W	
R112	1-246-521-00	CARBON	100K	5%	1/4W	
R113	1-246-485-00	CARBON	3.3K	5%	1/4W	
R114	1-246-453-00	CARBON	150	5%	1/4W	
R115	1-246-487-00	CARBON	3.9K	5%	1/4W	
R116	1-246-457-00	CARBON	220	5%	1/4W	
R117	1-246-473-00	CARBON	1K	5%	1/4W	
R118	1-246-441-00	CARBON	47	5%	1/4W	
R119	1-246-449-00	CARBON	100	5%	1/4W	
R120	1-246-473-00	CARBON	1K	5%	1/4W	
R121	1-246-513-00	CARBON	47K	5%	1/4W	
R122	1-246-513-00	CARBON	47K	5%	1/4W	
R123	1-246-519-00	CARBON	82K	5%	1/4W	
R124	1-246-471-00	CARBON	820	5%	1/4W	
R125	1-246-471-00	CARBON	820	5%	1/4W	
R126	1-246-471-00	CARBON	820	5%	1/4W	
R127	1-246-519-00	CARBON	82K	5%	1/4W	
R128	1-246-521-00	CARBON	100K	5%	1/4W	
R129	1-246-471-00	CARBON	820	5%	1/4W	
R130	1-246-517-00	CARBON	68K	5%	1/4W	
R131	1-214-720-00	METAL	430	1%	1/4W	
R132	1-246-485-00	CARBON	3.3K	5%	1/4W	
R133	1-246-521-00	CARBON	100K	5%	1/4W	
R134	1-214-767-00	METAL	39K	1%	1/4W	
R135	1-214-955-51	METAL	430K	1%	1/4W	
R136	1-214-957-00	METAL	510K	1%	1/4W	
R137	1-214-716-00	METAL	300	1%	1/4W	

When indicating parts by reference number, please include the board name.

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description				Remark
R138	1-214-770-00	METAL	51K	1%	1/4W	
R139	1-246-529-00	CARBON	220K	5%	1/4W	
R140	1-246-497-00	CARBON	10K	5%	1/4W	
R141	1-246-497-00	CARBON	10K	5%	1/4W	
R142	1-246-507-00	CARBON	27K	5%	1/4W	
R144	1-246-497-00	CARBON	10K	5%	1/4W	
R145	1-246-521-00	CARBON	100K	5%	1/4W	
R146	1-246-521-00	CARBON	100K	5%	1/4W	
R147	1-246-497-00	CARBON	10K	5%	1/4W	
R148	1-246-521-00	CARBON	100K	5%	1/4W	
R149	1-246-521-00	CARBON	100K	5%	1/4W	
R150	1-214-777-00	METAL	100K	1%	1/4W	
R151	1-214-777-00	METAL	100K	1%	1/4W	
R152	1-246-493-00	CARBON	6.8K	5%	1/4W	
R153	1-246-489-00	CARBON	4.7K	5%	1/4W	
R154	1-246-489-00	CARBON	4.7K	5%	1/4W	
R155	1-246-461-00	CARBON	330	5%	1/4W	
R156	1-246-483-00	CARBON	2.7K	5%	1/4W	
R157	1-246-521-00	CARBON	100K	5%	1/4W	
R158	1-246-811-00	CARBON	220K		1/8W	
R159	1-246-531-00	CARBON	270K	5%	1/4W	

VARIABLE RESISTOR

RV107	1-226-854-00	RES, ADJ, CARBON 100K
RV143	1-226-854-00	RES, ADJ, CARBON 100K

SWITCH

S001	1-516-226-00	SLIDE SWITCH
S002	1-516-226-00	SLIDE SWITCH
S003	1-554-300-00	SWITCH, PUSH (12 KEY)

TRANSFORMER

T101	1-404-378-00	I.F.T
T102	1-404-378-00	I.F.T
T103	1-404-135-00	COIL, SIF DISCRI
T104	1-404-378-00	I.F.T
T105	1-404-343-00	COIL, IF
T106	1-404-135-00	COIL, SIF DISCRI

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♠:1-608-541-00 AJ-1 BOARD
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CAPACITOR

C801	1-123-340-00	ELECT	4.7MF	20%	35V
C804	1-161-021-00	CERAMIC	0.047MF	10%	25V
C805	1-123-311-00	ELECT	1000MF	20%	10V

CONNECTOR

C801	♠:1-508-797-00	PIN, CONNECTOR 4P
C802	♠:1-508-743-00	PIN, CONNECTOR 5P
C803	♠:1-508-743-00	PIN, CONNECTOR 5P
C804	♠:1-508-742-00	PIN, CONNECTOR 3P

DIODE

D801	=>8-719-200-02	DIODE 10E2
D802	8-719-911-19	DIODE 1SS119
D803	8-719-911-19	DIODE 1SS119
D804	=>8-719-200-02	DIODE 10E2
D805	8-719-911-19	DIODE 1SS119
D806	8-719-200-02	DIODE 10E2
D807	8-719-113-07	DIODE RD13E-B

JACK

J801	♠:1-507-588-91	JACK, PIN 1P
J802	1-507-588-61	JACK, PIN (1P)
J803	1-507-588-51	JACK, PIN (1P)
J804	1-507-588-61	JACK, PIN (1P)
J805	1-562-121-00	CONNECTOR, DIN 6P

TRANSISTOR

Q801	8-729-178-54	TRANSISTOR 2SC2785
Q802	8-729-117-54	TRANSISTOR 2SA1175
Q803	8-729-603-50	TRANSISTOR 2SC403SP

RESISTOR

R801	1-246-791-00	CARBON	4.7K		1/8W	
R802	1-246-791-00	CARBON	4.7K		1/8W	
R803	1-246-803-00	CARBON	47K		1/8W	
R804	1-246-803-00	CARBON	47K		1/8W	
R805	1-246-789-00	CARBON	3.3K		1/8W	
R806	1-246-789-00	CARBON	3.3K		1/8W	
R807	1-246-779-00	CARBON	470		1/8W	
R808	1-246-779-00	CARBON	470		1/8W	
R809	1-246-791-00	CARBON	4.7K		1/8W	
R810	1-246-795-00	CARBON	10K		1/8W	
R811	⚠1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R812	1-246-771-00	CARBON	100		1/8W	
R813	1-246-787-00	CARBON	2.2K		1/8W	
R814	1-246-461-00	CARBON	330	5%	1/4W	
R815	1-246-769-00	CARBON	68		1/8W	
R818	1-246-804-00	CARBON	56K		1/8W	
R819	1-246-804-00	CARBON	56K		1/8W	
R820	1-246-790-00	CARBON	3.9K		1/8W	
R821	1-246-790-00	CARBON	3.9K		1/8W	

RELAY

RY801	1-515-323-00	RELAY

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♠:1-605-704-00 TT-5 BOARD
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CAPACITOR

C101	1-161-021-00	CERAMIC	0.047MF	10%	25V

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

TT-5 | TT-2 | TT-3 | TT-4 | SL-1 | DR-1

Ref.No.	Part No.	Description			Remark
C102	1-123-901-00	ELECT	2.2MF	20%	50V

CONNECTOR

CN101♠:	1-508-848-00	PIN, CONNECTOR 6P

COIL

L101	1-408-538-00	COIL, NOISE FILTER

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♠:1-605-705-00 TT-2 BOARD
****

SWITCH

S7103	1-554-241-00	SWITCH, LEVER

****

♠:1-605-706-00 TT-3 BOARD
****

SWITCH

S7102	1-554-241-00	SWITCH, LEVER (Cassette-dowm)

****

♠:1-605-707-00 TT-4 BOARD
****

SWITCH

S7101	1-554-241-00	SWITCH, LWVER (Cassette-in)

****

♠:1-605-691-00 SL-1 BOARD
****

♠:3-659-359-00 PLATE, BOOST, REED SWITCH

SWITCH

S7201	1-552-180-00	SWITCH, REED

****

♠:A-6728-305-A DR-1 BOARD, COMPLETE
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CAPACITOR

Ref.No.	Part No.	Description			Remark
C001	1-161-330-51	CERAMIC	0.01MF	30%	25V
C002	1-129-794-00	FILM	0.0033MF	5%	100V
C003	1-161-330-51	CERAMIC	0.01MF	30%	25V
C004	1-161-330-51	CERAMIC	0.01MF	30%	25V
C005	1-161-330-51	CERAMIC	0.01MF	30%	25V
C006	1-123-380-00	ELECT	1MF	20%	50V
C007	1-123-380-00	ELECT	1MF	20%	50V
C008	1-161-494-00	CERAMIC	0.022MF	30%	25V
C009	1-123-379-00	ELECT	0.47MF	20%	50V
C010	1-161-330-51	CERAMIC	0.01MF	30%	25V
C011	1-129-794-00	FILM	0.0033MF	5%	100V
C012	1-161-330-51	CERAMIC	0.01MF	30%	25V
C013	1-161-330-51	CERAMIC	0.01MF	30%	25V
C014	1-123-380-00	ELECT	1MF	20%	50V
C015	1-123-380-00	ELECT	1MF	20%	50V
C016	1-161-494-00	CERAMIC	0.022MF	30%	25V
C017	1-123-379-00	ELECT	0.47MF	20%	50V
C018	1-123-332-00	ELECT	47MF	20%	16V
C019	1-161-330-51	CERAMIC	0.01MF	30%	25V
C020	1-161-330-51	CERAMIC	0.01MF	30%	25V
C021	1-123-328-00	ELECT	4.7MF	20%	25V
C022	1-161-494-00	CERAMIC	0.022MF	30%	25V

CONNECTOR

CN001♠:	1-508-743-00	PIN, CONNECTOR 5P
CN002♠:	1-508-742-00	PIN, CONNECTOR 3P
CN003♠:	1-508-742-00	PIN, CONNECTOR 3P
CN004♠:	1-508-742-00	PIN, CONNECTOR 3P
CN005♠:	1-508-742-00	PIN, CONNECTOR 3P
CN006♠:	1-508-796-00	PIN, CONNECTOR 2P

DIODE

D001	8-719-815-55	DIODE 1S1555
D003	8-719-200-02	DIODE 10E2
D004	8-719-200-02	DIODE 10E2
D005	8-719-200-02	DIODE 10E2
D006	8-719-200-02	DIODE 10E2
D007	8-719-200-02	DIODE 10E2
D008	8-719-200-02	DIODE 10E2
D009	8-719-200-02	DIODE 10E2
D010	8-719-200-02	DIODE 10E2
D011	8-719-200-02	DIODE 10E2
D012	8-719-200-02	DIODE 10E2
D013	8-719-200-02	DIODE 10E2
D014	8-719-200-02	DIODE 10E2
D015	8-719-200-02	DIODE 10E2
D017	8-719-815-55	DIODE 1S1555
D018	8-719-815-55	DIODE 1S1555
D019	8-719-815-55	DIODE 1S1555

COIL

L003	1-407-212-XX	MICRO INDUCTOR 33MMH

TRANSISTOR

Q001	8-729-178-54	TRANSISTOR 2SC2785
Q002	8-729-113-32	TRANSISTOR 2SB733
Q003	=>8-729-177-43	TRANSISTOR 2SD774
Q004	8-729-113-32	TRANSISTOR 2SB733
Q005	=>8-729-177-43	TRANSISTOR 2SD774
Q006	8-729-178-54	TRANSISTOR 2SC2785

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
Q007	8-729-178-54	TRANSISTOR 2SC2785				
Q008	8-729-178-54	TRANSISTOR 2SC2785				
Q010	=>8-729-177-32	TRANSISTOR 2SD773				
Q011	8-729-178-54	TRANSISTOR 2SC2785				
Q012	8-729-178-54	TRANSISTOR 2SC2785				
Q013	8-729-178-54	TRANSISTOR 2SC2785				
Q014	8-729-178-54	TRANSISTOR 2SC2785				
Q015	8-729-178-54	TRANSISTOR 2SC2785				
Q016	8-729-178-54	TRANSISTOR 2SC2785				
Q017	8-729-178-54	TRANSISTOR 2SC2785				
Q018	8-729-178-54	TRANSISTOR 2SC2785				
Q019	8-729-117-54	TRANSISTOR 2SA1175				
Q020	=>8-729-831-33	TRANSISTOR 2SD313HP				
Q021	8-729-116-42	TRANSISTOR 2SD1164				
Q022	8-729-116-42	TRANSISTOR 2SD1164				
Q023	=>8-729-177-43	TRANSISTOR 2SD774				
Q024	8-729-178-54	TRANSISTOR 2SC2785				
Q025	8-729-116-42	TRANSISTOR 2SD1164				
Q026	=>8-729-177-43	TRANSISTOR 2SD774				
Q027	8-729-116-42	TRANSISTOR 2SD1164				
Q028	=>8-729-177-43	TRANSISTOR 2SD774				
Q029	8-729-331-53	TRANSISTOR 2SC2315				
Q030	8-729-178-54	TRANSISTOR 2SC2785				
Q031	8-729-116-42	TRANSISTOR 2SD1164				
Q034	8-729-606-32	TRANSISTOR 2SC2603				

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-246-473-00	CARBON	1K	5%	1/4W	
R002	1-246-515-00	CARBON	56K	5%	1/4W	
R003	1-246-491-00	CARBON	5.6K	5%	1/4W	
R004	1-246-473-00	CARBON	1K	5%	1/4W	
R005	1-246-491-00	CARBON	5.6K	5%	1/4W	
R006	1-246-473-00	CARBON	1K	5%	1/4W	
R007	1-246-473-00	CARBON	1K	5%	1/4W	
R008	1-246-449-00	CARBON	100	5%	1/4W	
R009	1-246-513-00	CARBON	47K	5%	1/4W	
R010	1-246-513-00	CARBON	47K	5%	1/4W	
R011	1-246-513-00	CARBON	47K	5%	1/4W	
R012	1-246-528-00	CARBON	200K	5%	1/4W	
R013	1-246-483-00	CARBON	2.7K	5%	1/4W	
R014	1-246-511-00	CARBON	39K	5%	1/4W	
R015	1-246-457-00	CARBON	220	5%	1/4W	
R016	1-246-517-00	CARBON	68K	5%	1/4W	
R017	1-246-521-00	CARBON	100K	5%	1/4W	
R018	1-246-483-00	CARBON	2.7K	5%	1/4W	
R019	1-246-491-00	CARBON	5.6K	5%	1/4W	
R020	1-246-473-00	CARBON	1K	5%	1/4W	
R021	1-246-494-00	CARBON	7.5K	5%	1/4W	
R022	1-246-509-00	CARBON	33K	5%	1/4W	
R023	1-246-505-00	CARBON	22K	5%	1/4W	
R024	1-246-443-00	CARBON	56	5%	1/4W	
R025	1-246-521-00	CARBON	100K	5%	1/4W	
R026	1-246-528-00	CARBON	200K	5%	1/4W	
R027	1-246-483-00	CARBON	2.7K	5%	1/4W	
R028	1-246-457-00	CARBON	220	5%	1/4W	
R029	1-246-511-00	CARBON	39K	5%	1/4W	
R030	1-246-517-00	CARBON	68K	5%	1/4W	
R031	1-246-521-00	CARBON	100K	5%	1/4W	
R032	1-246-483-00	CARBON	2.7K	5%	1/4W	
R033	1-246-491-00	CARBON	5.6K	5%	1/4W	
R034	1-246-473-00	CARBON	1K	5%	1/4W	
R035	1-246-494-00	CARBON	7.5K	5%	1/4W	
R036	1-246-509-00	CARBON	33K	5%	1/4W	
R037	1-246-505-00	CARBON	22K	5%	1/4W	
R038	1-246-443-00	CARBON	56	5%	1/4W	
R039	1-246-521-00	CARBON	100K	5%	1/4W	
R040	1-246-515-00	CARBON	56K	5%	1/4W	
R041	1-246-465-00	CARBON	470	5%	1/4W	
R042	1-246-513-00	CARBON	47K	5%	1/4W	
R043	1-246-465-00	CARBON	470	5%	1/4W	
R044	1-246-497-00	CARBON	10K	5%	1/4W	
R045	⚠1-212-360-00	METAL	1	5%	1W	F
R046	1-246-449-00	CARBON	100	5%	1/4W	
R047	1-246-497-00	CARBON	10K	5%	1/4W	
R048	1-246-497-00	CARBON	10K	5%	1/4W	
R049	1-246-516-00	CARBON	62K	5%	1/4W	
R050	1-246-497-00	CARBON	10K	5%	1/4W	
R051	1-246-481-00	CARBON	2.2K	5%	1/4W	
R052	1-246-497-00	CARBON	10K	5%	1/4W	
R053	1-246-497-00	CARBON	10K	5%	1/4W	
R054	1-246-497-00	CARBON	10K	5%	1/4W	
R055	1-246-473-00	CARBON	1K	5%	1/4W	
R060	⚠1-246-981-00	CARBON	4.7	5%	1/8W	F
R061	⚠1-212-360-00	METAL	1	5%	1W	F
R062	⚠1-217-375-00	FUSIBLE	1	5%	1/4W	F
R065	⚠1-246-989-00	CARBON	82	5%	1/8W	F
R066	1-246-497-00	CARBON	10K	5%	1/4W	
R067	⚠1-246-981-00	CARBON	4.7	5%	1/8W	F

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♠:1-605-695-00 DR-2 BOARD
****

SWITCH

S001	1-552-664-00	SWITCH, MICRO

****

♠:1-605-696-00 DR-3 BOARD
****

♠:3-671-128-00 BRACKET (L), SWITCH

SWITCH

S002	1-552-664-00	SWITCH, MICRO

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

DR-4 DR-5 DR-6 DR-7 DR-8 DR-9 DR-10 FG-2 FL-2 CP-6 TP-13

Ref.No.	Part No.	Description			Remark
	♠:1-605-697-14	DR-4 BOARD **********			
		SWITCH			
S003	1-553-847-00	SWITCH, LEVER			

****

Ref.No.	Part No.	Description			Remark
	♠:1-605-698-00	DR-5 BOARD **********			

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Ref.No.	Part No.	Description			Remark
	♠:1-605-699-00	DR-6 BOARD **********			

****

Ref.No.	Part No.	Description			Remark
	♠:1-605-700-00	DR-7 BOARD **********			

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Ref.No.	Part No.	Description			Remark
	♠:1-605-701-00	DR-8 BOARD **********			
		COIL			
L001	1-543-145-00	HEAD, SENSING			

****

Ref.No.	Part No.	Description			Remark
	♠:1-605-702-00	DR-9 BOARD **********			
		COIL			
L002	1-543-145-00	HEAD, SENSING			

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Ref.No.	Part No.	Description			Remark
	♠:1-605-703-00	DR-10 BOARD ***********			
		TRANSISTOR			
Q009	=>8-729-831-33	TRANSISTOR 2SD313HP			

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Ref.No.	Part No.	Description			Remark
	♠:1-605-708-00	FG-2 BOARD **********			
	3-658-161-03	HOLDER, DME			
	♠:3-659-313-00	PLATE, ADJUSTMENT, DME			
		SEMICONDUCTOR			
DM701	8-749-011-01	DM-101A			

Ref.No.	Part No.	Description			Remark
	♠:1-605-692-00	FL-2 BOARD **********			
		CAPACITOR			
C001	1-161-076-00	CERAMIC	0.1MF	20%	50V
C002	1-161-076-00	CERAMIC	0.1MF	20%	50V
		COIL			
L001	1-421-225-00	COIL, LINE FILTER			

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Ref.No.	Part No.	Description			Remark
	♠:1-606-102-00	CP-6 BOARD **********			
		CAPACITOR			
C101	1-123-380-00	ELECT	1MF	20%	50V
		CONNECTOR			
CN101	♠:1-508-847-00	PIN, CONNECTOR 4P			
CN102	♠:1-508-734-00	PIN, CONNECTOR 3P			
		TRANSISTOR			
Q101	8-729-178-54	TRANSISTOR 2SC2785			
Q102	8-729-178-54	TRANSISTOR 2SC2785			
Q103	8-729-178-54	TRANSISTOR 2SC2785			
Q104	8-729-178-54	TRANSISTOR 2SC2785			
		RESISTOR			
R101	1-246-515-00	CARBON	56K	5%	1/4W
R102	1-246-505-00	CARBON	22K	5%	1/4W
R103	1-246-505-00	CARBON	22K	5%	1/4W
R104	1-246-452-00	CARBON	130	5%	1/4W
R105	1-246-484-00	CARBON	3K	5%	1/4W
R106	1-246-472-00	CARBON	910	5%	1/4W
R107	1-246-491-00	CARBON	5.6K	5%	1/4W
R108	1-246-515-00	CARBON	56K	5%	1/4W
R109	1-246-449-00	CARBON	100	5%	1/4W

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Ref.No.	Part No.	Description			Remark
	♠:1-606-944-00	TP-13 BOARD ***********			
		CAPACITOR			
C204	1-161-330-51	CERAMIC	0.01MF	30%	25V
C271	1-161-330-51	CERAMIC	0.01MF	30%	25V
C272	1-161-330-51	CERAMIC	0.01MF	30%	25V
C273	1-161-330-51	CERAMIC	0.01MF	30%	25V
C281	1-123-617-00	ELECT	10MF	20%	16V
C282	1-123-617-00	ELECT	10MF	20%	16V
C283	1-161-330-51	CERAMIC	0.01MF	30%	25V
C284	1-123-647-00	ELECT	47MF	20%	6.3V
C285	1-161-330-51	CERAMIC	0.01MF	30%	25V

When indicating parts by reference number, please include the board name.

DIODE

Ref.No.	Part No.	Description	Remark
D203	8-719-815-55	DIODE 1S1555	
D204	8-719-815-55	DIODE 1S1555	
D271	8-719-101-60	DIODE RD6.2E-L1	
D282	8-719-815-55	DIODE 1S1555	
D283	8-719-101-40	DIODE RD3.9E-L1	

INDICATOR TUBE

Ref.No.	Part No.	Description	Remark
FL301	1-519-253-00	INDICATOR TUBE, FLUORESCENT	

IC

Ref.No.	Part No.	Description	Remark
IC301	=>8-759-200-93	IC TCP4621AF-6002	

COIL

Ref.No.	Part No.	Description	Remark
L251	1-407-717-00	MICRO INDUCTOR 1MMH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q251	8-729-245-83	TRANSISTOR 2SC2458	
Q252	8-729-245-83	TRANSISTOR 2SC2458	
Q257	=>8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description				Remark
R203	1-246-521-00	CARBON	100K	5%	1/4W	
R205	1-246-521-00	CARBON	100K	5%	1/4W	
R272	1-246-453-00	CARBON	150	5%	1/4W	
R273	1-246-513-00	CARBON	47K	5%	1/4W	
R274	1-246-513-00	CARBON	47K	5%	1/4W	
R275	1-246-513-00	CARBON	47K	5%	1/4W	
R276	1-246-513-00	CARBON	47K	5%	1/4W	
R278	1-246-497-00	CARBON	10K	5%	1/4W	
R282	1-246-494-00	CARBON	7.5K	5%	1/4W	
R283	1-246-494-00	CARBON	7.5K	5%	1/4W	
R284	1-246-489-00	CARBON	4.7K	5%	1/4W	
R285	1-246-521-00	CARBON	100K	5%	1/4W	
R287	1-246-521-00	CARBON	100K	5%	1/4W	
R288	1-246-521-00	CARBON	100K	5%	1/4W	
R290	1-246-521-00	CARBON	100K	5%	1/4W	
R297	1-246-497-00	CARBON	10K	5%	1/4W	

SWITCH

Ref.No.	Part No.	Description	Remark
S401	1-552-774-00	SWITCH, PUSH	
S402	1-552-774-00	SWITCH, PUSH	
S403	1-552-774-00	SWITCH, PUSH	
S404	1-552-774-00	SWITCH, PUSH	
S405	1-552-774-00	SWITCH, PUSH	
S406	1-552-774-00	SWITCH, PUSH	
S407	1-552-774-00	SWITCH, PUSH	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T251	1-404-394-00	TRANSFORMER, IFT	

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●:1-606-945-00 TP-14 BOARD
****

●:3-671-208-00 HOLDER, SWITCH, POWER

DIODE

Ref.No.	Part No.	Description	Remark
D501	8-719-812-33	DIODE TLG123A	
D502	8-719-812-31	DIODE TLR123	

RESISTOR

Ref.No.	Part No.	Description				Remark
R501	1-246-477-00	CARBON	1.5K	5%	1/4W	

SWITCH

Ref.No.	Part No.	Description	Remark
S501	1-553-846-00	SWITCH, PUSH (2 KEY)	

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●:1-606-946-00 TP-16 BOARD
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IC

Ref.No.	Part No.	Description	Remark
IC001⚠	8-749-953-14	IC STK-5314	

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●:A-6728-568-A TP-12 BOARD, COMPLETE
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1-533-162-00 HOLDER, FUSE
●:3-674-134-00 HEAT SINK

CAPACITOR

Ref.No.	Part No.	Description				Remark
C001	1-123-403-00	ELECT	4700MF		25V	
C002	1-123-404-00	ELECT	10000MF		25V	
C006	1-123-332-00	ELECT	47MF	20%	16V	
C007	1-123-253-00	ELECT	22MF		160V	
C009	1-123-332-00	ELECT	47MF	20%	16V	
C010	1-123-350-00	ELECT	2200MF	20%	35V	
C011	1-123-333-00	ELECT	100MF	20%	25V	
C020	1-123-328-00	ELECT	4.7MF	20%	25V	
C021	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C022	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C201	1-123-324-00	ELECT	1000MF	20%	16V	
C270	1-123-356-00	ELECT	10MF	20%	16V	
C280	1-123-304-00	ELECT	10000MF	20%	6.3V	
C291	1-123-607-00	ELECT	0.1MF	20%	50V	
C292	1-123-607-00	ELECT	0.1MF	20%	50V	
C801	1-123-330-00	ELECT	22MF	20%	16V	
C802	1-108-389-00	MYLAR	0.1MF	10%	100V	

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

TP-12 | LF-23 | FS-22

Ref.No.	Part No.	Description				Remark
C803	1-123-356-00	ELECT	10MF	20%	16V	
C804	1-108-377-00	MYLAR	0.01MF	10%	100V	
C805	1-123-356-00	ELECT	10MF	20%	16V	
C806	1-123-318-00	ELECT	33MF	20%	16V	
C807	1-161-051-00	CERAMIC	0.01MF	10%	50V	
		CONNECTOR				
CN001	♦:1-508-744-00	PIN, CONNECTOR 10P				
CN002	♦:1-560-136-00	PLUG, CONNECTOR 4P				
CN003	♦:1-508-845-00	PIN, CONNECTOR 6P				
		JACK				
CNJ801	♦:1-526-575-00	SOCKET, PLUG				
		DIODE				
D003	=>8-719-900-95	DIODE V09G				
D007	8-719-200-02	DIODE 10E2				
D009	8-719-815-55	DIODE 1S1555				
D201	8-719-200-02	DIODE 10E2				
D251	8-719-100-67	DIODE RD13E-B1				
D252	8-719-815-55	DIODE 1S1555				
D280	8-719-815-55	DIODE 1S1555				
D281	8-719-815-55	DIODE 1S1555				
D301	⚠8-719-200-07	DIODE 30D2FA				
D302	⚠8-719-200-07	DIODE 30D2FA				
D303	⚠8-719-200-07	DIODE 30D2FA				
D304	⚠8-719-200-07	DIODE 30D2FA				
D305	⚠8-719-200-07	DIODE 30D2FA				
D306	⚠8-719-200-07	DIODE 30D2FA				
D307	⚠8-719-200-07	DIODE 30D2FA				
D308	⚠8-719-200-07	DIODE 30D2FA				
		FUSE				
F001	⚠1-532-237-00	FUSE, TIME-LAG				
F002	⚠1-532-350-00	FUSE, TIME-LAG				
		TRANSISTOR				
Q002	8-729-245-83	TRANSISTOR 2SC2458				
Q009	8-729-245-83	TRANSISTOR 2SC2458				
Q010	8-729-245-83	TRANSISTOR 2SC2458				
Q011	8-729-245-83	TRANSISTOR 2SC2458				
Q253	8-729-245-83	TRANSISTOR 2SC2458				
Q254	=>8-729-117-54	TRANSISTOR 2SA1175				
Q255	8-729-316-16	TRANSISTOR 2SC1061				
		RESISTOR				
R004	1-246-521-00	CARBON	100K	5%	1/4W	
R005	1-246-505-00	CARBON	22K	5%	1/4W	
R006	1-246-497-00	CARBON	10K	5%	1/4W	
R015	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F
R016	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F
R017	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F

Ref.No.	Part No.	Description				Remark
R023	1-246-509-00	CARBON	33K	5%	1/4W	
R025	1-246-485-00	CARBON	3.3K	5%	1/4W	
R026	1-246-507-00	CARBON	27K	5%	1/4W	
R027	1-246-521-00	CARBON	100K	5%	1/4W	
R028	1-246-497-00	CARBON	10K	5%	1/4W	
R206	1-246-469-00	CARBON	680	5%	1/4W	
R209	1-246-497-00	CARBON	10K	5%	1/4W	
R210	1-246-505-00	CARBON	22K	5%	1/4W	
R211	1-246-505-00	CARBON	22K	5%	1/4W	
R212	1-246-505-00	CARBON	22K	5%	1/4W	
R252	1-246-505-00	CARBON	22K	5%	1/4W	
R253	1-246-505-00	CARBON	22K	5%	1/4W	
R255	1-246-509-00	CARBON	33K	5%	1/4W	
R256	1-246-513-00	CARBON	47K	5%	1/4W	
R257	1-246-513-00	CARBON	47K	5%	1/4W	
R258	1-246-515-00	CARBON	56K	5%	1/4W	
R259	1-246-517-00	CARBON	68K	5%	1/4W	
R260	1-246-516-00	CARBON	62K	5%	1/4W	
R270	1-246-470-00	CARBON	750	5%	1/4W	
R271	1-246-497-00	CARBON	10K	5%	1/4W	
R286	1-246-521-00	CARBON	100K	5%	1/4W	
R801	1-246-509-00	CARBON	33K	5%	1/4W	
		TUNER				
TU801	⚠1-463-350-00	TUNER (BT-881)				

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♦:1-608-544-00 LF-23 BOARD
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Ref.No.	Part No.	Description				Remark
	1-533-162-00	HOLDER, FUSE				
		CAPACITOR				
C101	⚠1-130-710-00	FILM	0.1MF	20%	250V	
		FUSE				
F101	⚠1-532-237-00	FUSE, TIME-LAG				

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♦:1-608-542-00 FS-22 BOARD
****

Ref.No.	Part No.	Description				Remark
	♦:3-661-516-00	HOLDER, LED				
		DIODE				
D001	8-719-812-33	DIODE TLG123A				
D002	8-719-812-32	DIODE TLY123				
D003	8-719-812-31	DIODE TLR123				
D004	8-719-812-32	DIODE TLY123				
		SWITCH				
S001	1-553-766-00	SWITCH, KEY BOARD				

When indicating parts by reference number, please include the board name.

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description	Remark
S002	1-553-766-00	SWITCH, KEY BOARD	
S003	1-553-766-00	SWITCH, KEY BOARD	
S004	1-553-766-00	SWITCH, KEY BOARD	
S005	1-553-766-00	SWITCH, KEY BOARD	
S006	1-553-766-00	SWITCH, KEY BOARD	

****

Ref.No.	Part No.	Description	Remark
	●:1-608-543-00	FS-23 BOARD ***********	
	●:3-661-516-00	HOLDER, LED	

DIODE

Ref.No.	Part No.	Description	Remark
D101	8-719-812-31	DIODE TLR123	

SWITCH

Ref.No.	Part No.	Description	Remark
S101	1-553-766-00	SWITCH, KEY BOARD	

****

Ref.No.	Part No.	Description	Remark
	●:1-609-252-00	MU-1 BOARD **********	

CAPACITOR

Ref.No.	Part No.	Description	Remark
C556	1-123-318-00	ELECT 33MF 20% 16V	

DIODE

Ref.No.	Part No.	Description	Remark
D510	8-719-911-19	DIODE 1SS119	
D511	8-719-911-19	DIODE 1SS119	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q518	8-729-178-54	TRANSISTOR 2SC2785	
Q618	8-729-178-54	TRANSISTOR 2SC2785	

RESISTOR

Ref.No.	Part No.	Description	Remark
R591	1-246-783-00	CARBON 1K 1/8W	
R592	1-246-799-00	CARBON 22K 1/8W	
R692	1-246-799-00	CARBON 22K 1/8W	

****

MISCELLANEOUS
****

Ref.No.	Part No.	Description	Remark
	⚠1-447-443-00	TRANSFORMER, POWER	
	⚠1-454-292-11	SOLENOID, PLUNGER (BS)	
	⚠1-454-293-11	SOLENOID, PLUNGER (FE)	
	⚠1-454-294-11	SOLENOID, PLUNGER (FF)	
	⚠1-454-295-00	SOLENOID, PLUNGER (PINCH)	
	⚠1-464-234-00	MODULATOR, RF BOOSTER(RFU-807)	
	⚠1-534-817-XX	CORD, POWER	
	1-548-559-00	COUNTER, TAPE	
	1-552-664-00	SWITCH, MICRO	
	⚠1-554-038-00	SWITCH, POWER VOLTAGE CHANGE	
	⚠1-554-055-00	SWITCH, SEESAW (MAIN SW)	
	●:1-555-400-00	CABLE, PIN	
	●:1-555-716-41	CABLE, PIN	
	1-933-276-00	JACK (RJ-2)	
	1-933-481-00	JACK (CP-4)	
	8-825-687-31	HEAD, FULL ERASE (EF182-21)	
	8-835-070-11	MOTOR, DC	

****

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
X-3674-127-2	LABEL ASSY, INSTRUCTION, PRESET	
1-551-513-00	CABLE, COAXAL ASSY	
3-660-986-00	SHEET, PROTECTION	
3-662-364-00	BAG, PROTECTION	
3-670-804-00	CUSHION (REAR LOWER)	
3-670-805-00	CUSHION (FRONT LOWER)	
3-670-806-00	CUSHION (RIGHT UPPER)	
3-670-807-00	CUSHION (LEFT UPPER)	
3-672-428-00	BAG, PROTECTION	
3-674-198-00	INDIVIDUAL CARTON	
3-701-007-00	BAND, BINDING	
3-773-229-11	MANUAL, INSTRUCTION	

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SL-C6ES

ADJUSTMENT MANUAL

SONY
Betamax
STEREO/BNR

710CHASSIS

September, 1982

Beta

VIDEO CASSETTE RECORDER

SONY®

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SECTION 1

PREPARATION FOR MECHANICAL SECTION CHECK, ADJUSTMENT AND REPLACEMENT

1-1. DISASSEMBLY

1. Cabinet Removal
   1) Remove the four screws ①.
   2) Remove the upper case ②.
   3) Remove the three screws ③.
   4) Push the front panel assembly ④ upward and pull it forward you.
   5) Remove the seven screws ⑤ and remove the bottom plate ⑥.

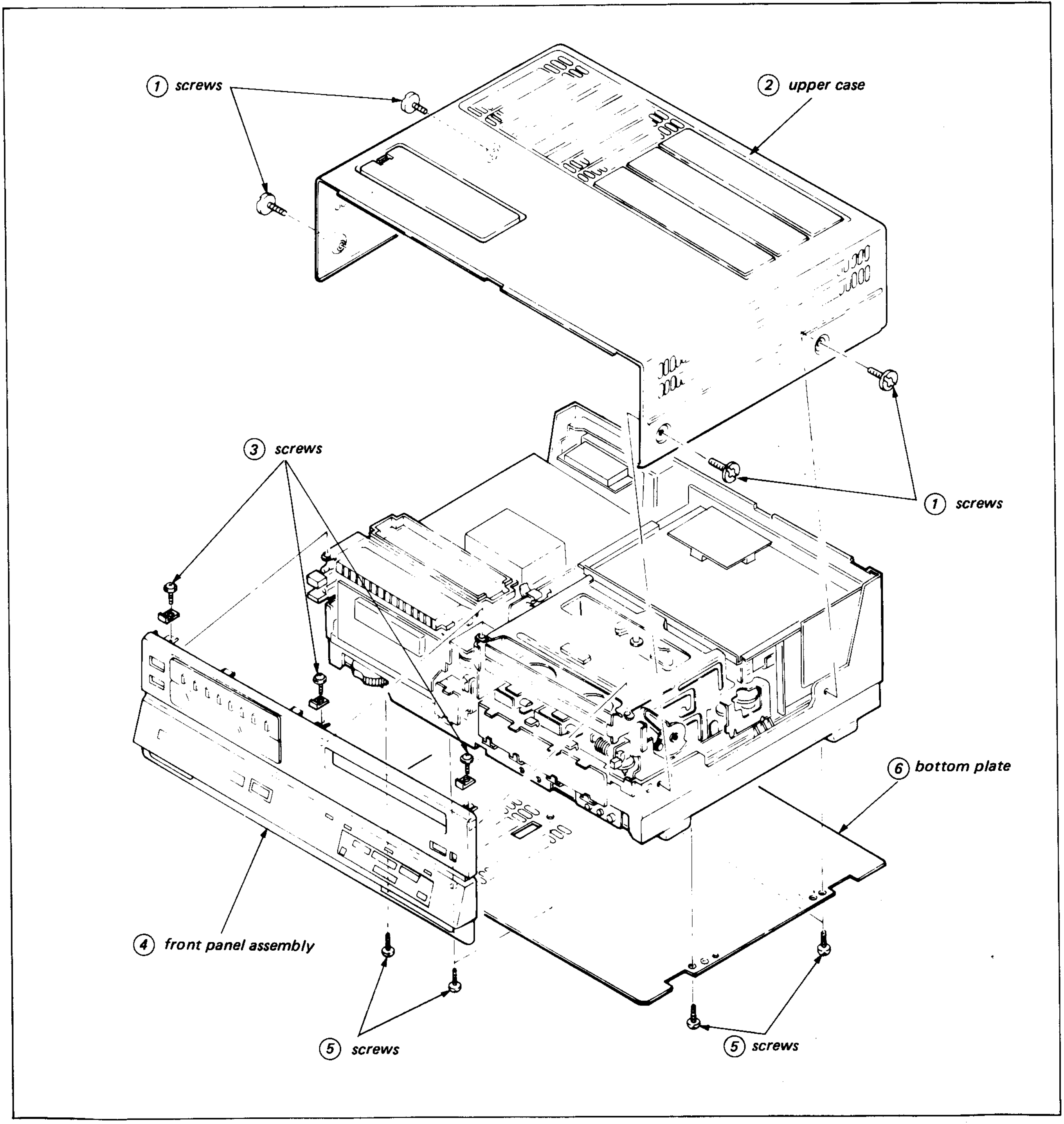

① screws
② upper case
③ screws
① screws
⑥ bottom plate
④ front panel assembly
⑤ screws
⑤ screws

Fig. 1-1. Cabinet removal

2. Tuner Block Removal (See Fig. 1-2)

1) Remove the five screws①.
2) Pull off connectors (4P, 5P, 5P, 8P).
3) Remove pin cable② .
4) Remove the tuner block by pulling up in the direction of arrow Ⓐ or Ⓐ '.

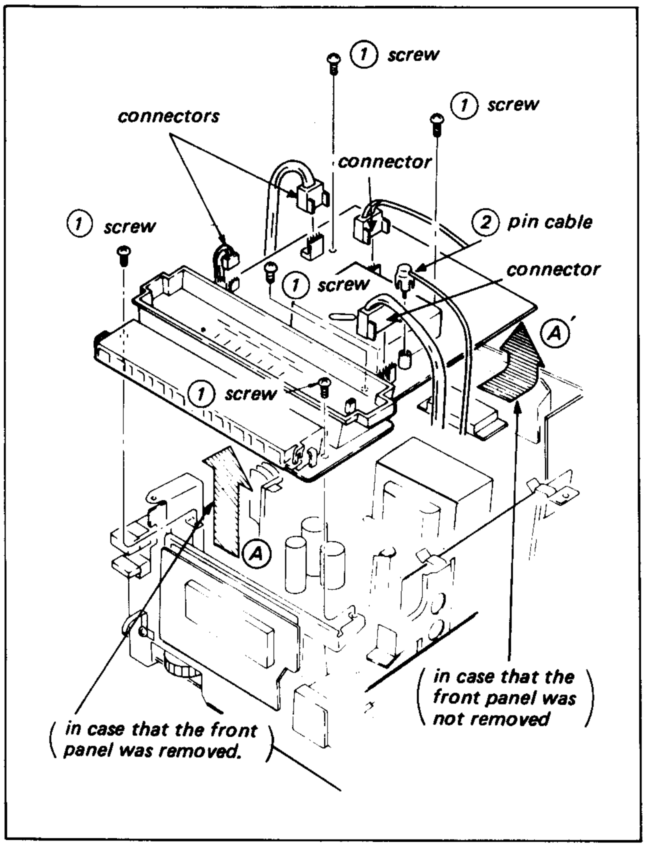

① screw
① screw
connectors
connector
① screw
② pin cable
① screw
connector
Ⓐ'
① screw
Ⓐ
in case that the front panel was not removed
in case that the front panel was removed.

Fig. 1-2. Tuner block removal

3. Timer Tuner Unit Removal (See Fig. 1-3)

1) Remove the three screws① .
2) Remove the six screws② .
3) Pull off connector③ (5P) from DR-1 board.
4) Pull off connector④ (6P) from YC-23 board.
5) Pull off connector⑤ (10P) on SS-9 board.
6) Remove T/T unit block by lifting up in the direction of the arrow.

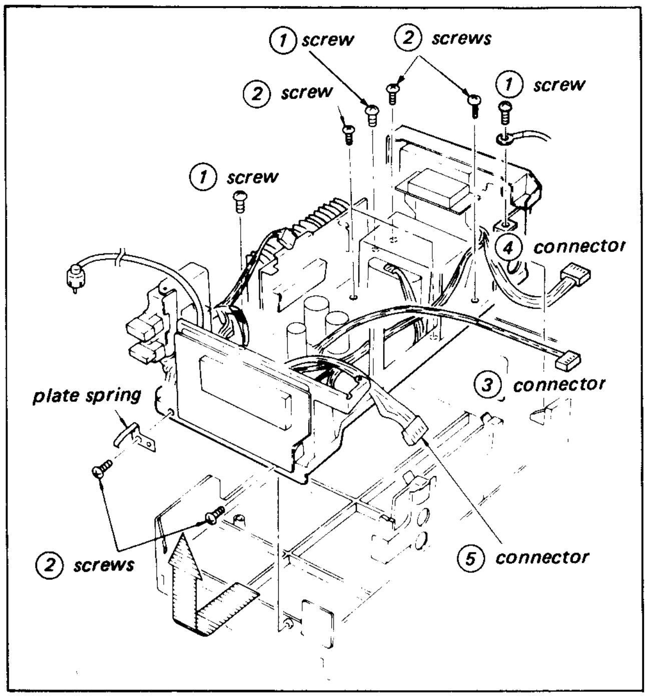

① screw
② screws
② screw
① screw
① screw
④ connecto
plate spring
③ connector
② screws
⑤ connector

Fig. 1-3. Timer tuner unit removal

4. YC-23 Board Removal (See Fig. 1-4a)

1) Place the set with the power supply side down.
2) Remove the four screws ① (the center screw includes a damper).
3) Remove the three hooks② .
4) As shown in the illustration, using the cassette as a support, lean the YC-23 board in the direction of the arrow.

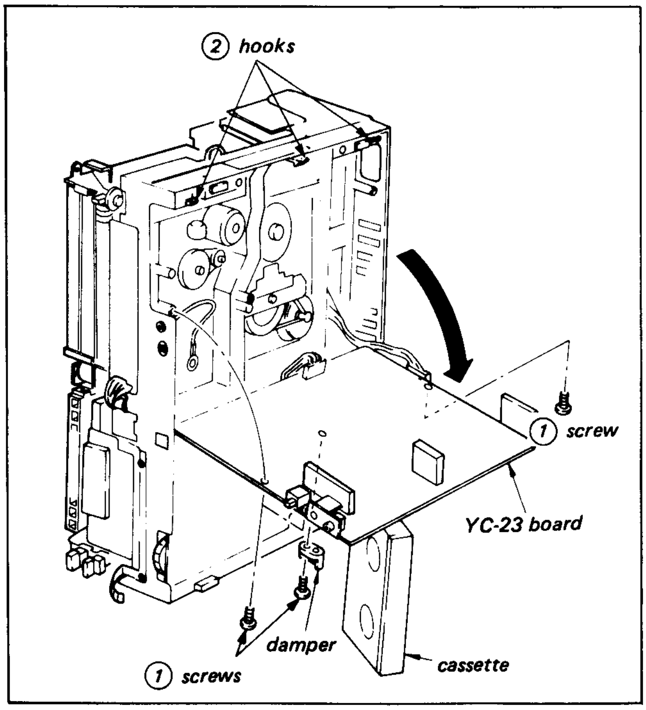

② hooks
① screw
YC-23 board
damper
cassette
① screws

Fig. 1-4a. YC-23 board removal

5. SS-9 Board Removal (See Fig. 1-4b)

1) Place the set with the power supply side up.
2) Remove the three screws①.
3) Remove the three hooks② and lean the SS-9 board in the direction of the arrow.

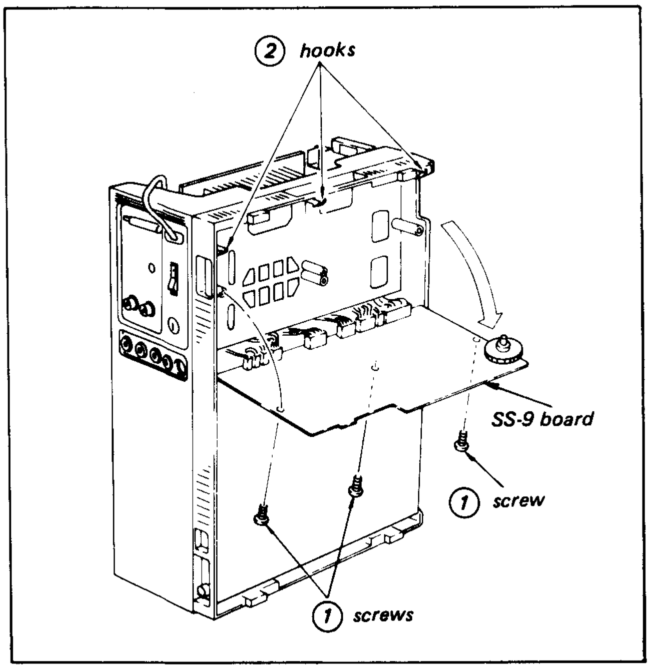


Fig. 1-4b. SS-9 board removal

6. AD-7 Board Removal (See Fig. 1-4c)

1) Remove the two screws①.
2) Open the AD-7 board in the direction of the arrow ②.

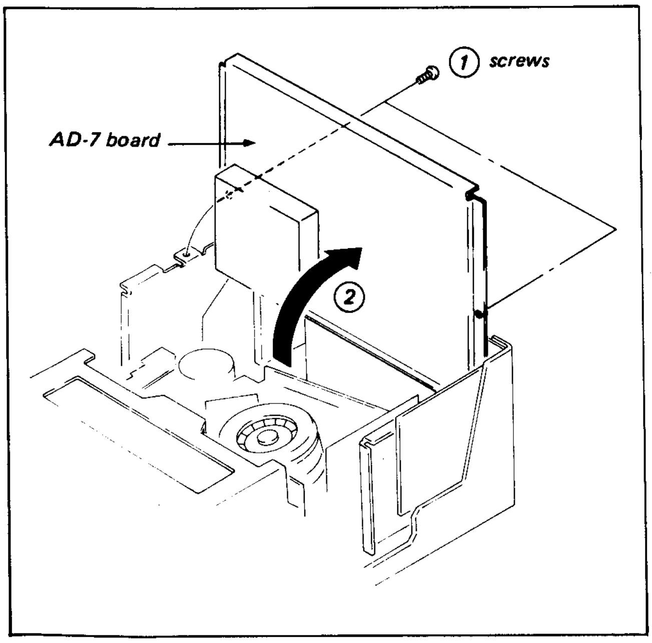


Fig. 1-4c. AD-7 board removal

1-2. NOTES ON SERVICING

1. Never place the machine upside down when the upper case has been removed, with the fan (black) attached to the drum assembly. (Since the fan projects from the chassis, excessive force applied to the drum could have an undesirable effect on tape transportation and tape interchangeability.)

2. Be sure to install the fan on the drum prior to tape playback check or electrical system alignment. If this is not done, the picture on the monitor may bend, as shown in Fig. 1-5.

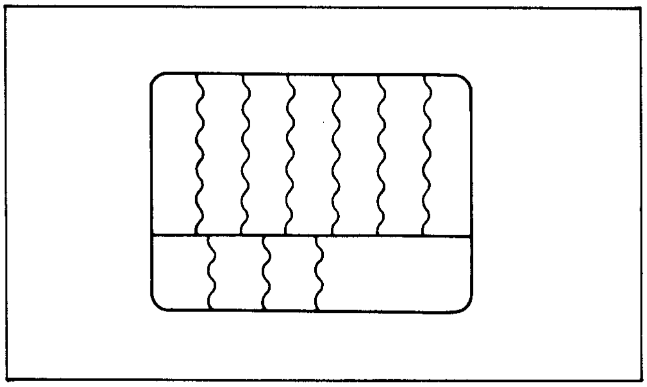


Fig. 1-5. Notes on servicing

1-3. OPERATING RECORDER WITHOUT CASSETTE INSTALLED

Note: When operating the machine without a cassette, the S- and T-side reel tables will float up during each function operation, generating noise when they rub against the soft brake arm, etc. This is mechanically undesirable, so when this operation must be performed for service, be sure to follow the procedures below exactly.

1. To set up threading completion state without cassette installed. (This state is called "STOP condition" in this guide.)

   A. With front loading (cassette lift) assembly installed (See Fig. 1-6a)

      (i) The front loading (cassette lift) assembly begins to drop when the TT-5 board CN101 pin ④ and pin ⑥ are shorted with tweezers. (See Fig. 1-6b)

      (ii) With the front loading assembly completely lowered, short the TT-5 board CN101 pin ⑤ and ⑥ until threading ring rotation stops.

      Note: Be careful not to touch any other pins when shorting the ones mentioned.

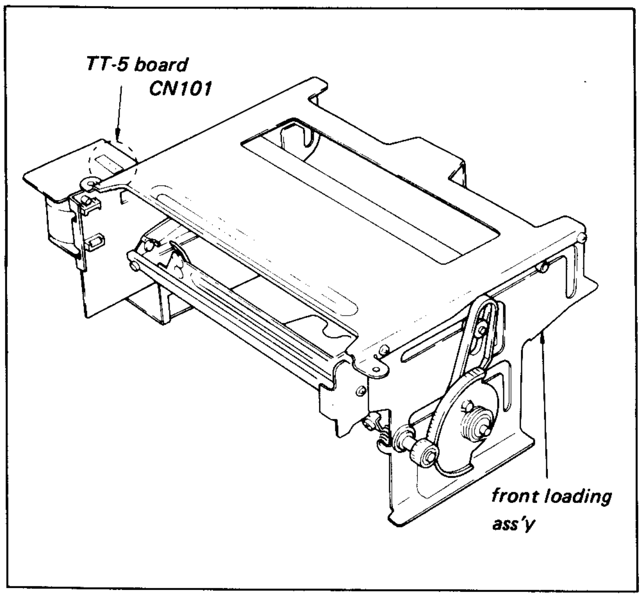


Fig. 1-6a. Operation without cassette

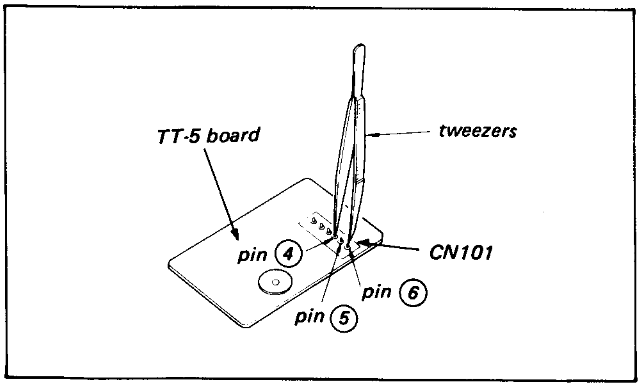


Fig. 1-6b. Operation without cassette

   B. With front loading (cassette lift) assembly removed (See Fig. 1-7)

      (i) Turn the STAND BY SW off.

      (ii) Short 5 and 6 on the harness (DR-6) from the DR-1 board to the cassette lift with a wire.

      (iii) When the STAND BY SW is turned on, the set will thread automatically.

      Note: Mains switch is located on the behind.

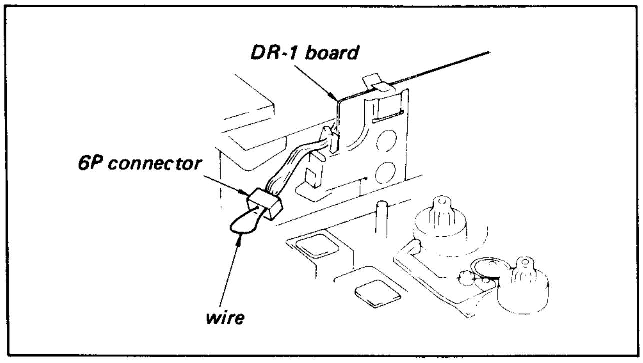


Fig. 1-7.

2. To set up PLAY, FAST FWD, REW states without a cassette installed

   A. With the front loading assembly installed

      The desired mode can be achieved by pressing the appropriate function button.

   B. With cassette lift assembly removed

      1) Stop slack sensor operation as shown in Fig. 1-9, section 1-4.

      2) Press the button for the desired mode.

      Note: Noise may be caused by the reel table and cassette lift or soft brake arm rubbing against each other, so do not continue this state any longer than necessary.

3. To set up EJECT mode without cassette installed

   - Pressing the EJECT button will cause unthreading, and the cassette lift will rise.

4. To set up RECORD mode without cassette installed (Fig. 1-8)

   1) Switch push the erase proof plate ① until the erase proof goes ON (a click noise will be heard).

   2) When the cassette lift assembly is removed, stop slack sensor operation following the procedure in item 1-4. (Fig. 1-9)

   3) Press RECORD button.

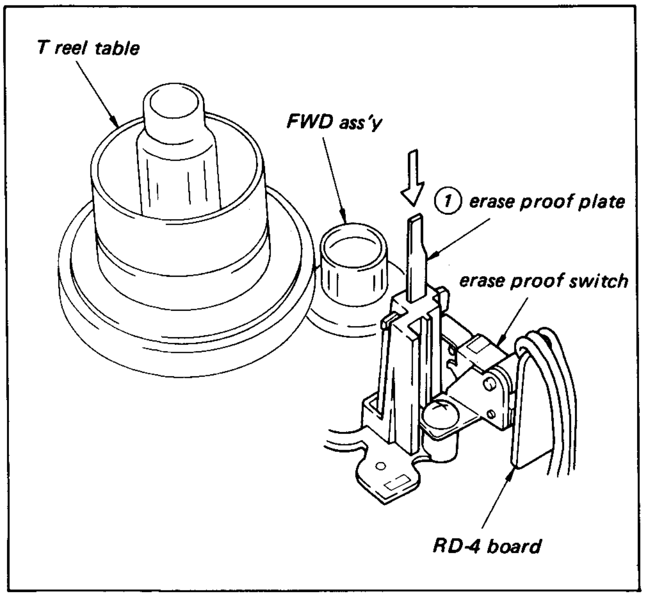

T reel table
FWD ass'y
① erase proof plate
erase proof switch
RD-4 board

Fig. 1-8.   Setting up RECORD mode without cassette

1-4. STOPPING SLACK SENSOR OPERATION

- As shown in Fig. 1-9, insert a toothpick, or matchstick with a sharpened end, into the hole on the SL-1 board to stop the movement of the slack sensor arm.

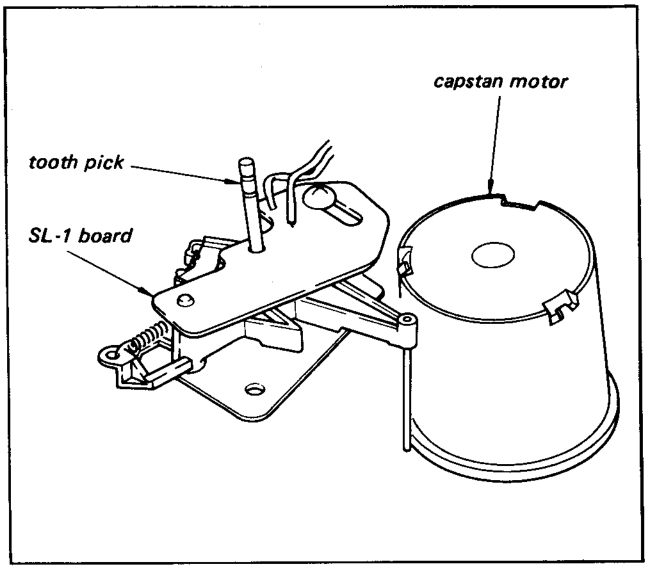

capstan motor
tooth pick
SL-1 board

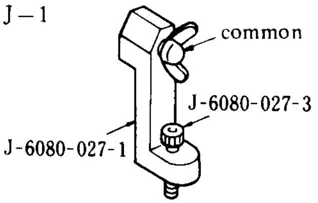
Fig. 1-9.   Stopping slack sensor operation

1-5. TOOLS AND FIXTURES REQUIRED

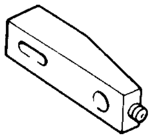
Ref. No.	Name	Part Code	Carved Jig No.	Use and Remarks
J-1	Upper Drum Eccentricity Adjustment Jig	J-6080-027-1 J-6080-027-3	SL-0027	Used for video head disc eccentricity adjustment (J2, J3 are each one portion of SL-0012)
J-2	Upper Drum Eccentricity Adjustment Jig	J-6080-012-A	SL-0012	
J-3	Upper Drum Eccentricity Adjustment Jig			
J-4	Reel Table Tension Gauge	J-6080-011-A	SL-0011	torque measurement
J-5	FWD Back Tension Measurement Jig	J-6080-002-A	SL-0002	FWD Back Tension Measurement
J-6	Sector Type Gauge (50g)	7-732-050-20	———	Back Tension and Torque Measurement
J-7	Sector Type Gauge (100g)	7-732-050-30	———	
J-8	Parallel Plate	J-608-657-0A	SL-0657	audio/CTL head lateral adj.
J-9	Dental Mirror (handle)	7-723-902-01	———	tape path, tape travelling adj. check. (always order the two together)
	Dental Mirror (mirror)	7-723-902-11	———	
J-10	Dihedral Adjustment Screw	J-6080-013-1	SL-0013	video dihedral adjustment
J-11	Alignment Tape (KR5-2H)	8-969-995-52	———	tracking, overall adj. of picture quality, etc.
J-12	Cleaning Fluid	Y-2031-001-0	———	cleaning
J-13	Chamois cloth	2-034-697-00	———	cleaning
J-14	Thickness gauge	9-911-053-00	———	thickness check
J-15	Head Demagnetizer		———	
J-16	Cleaning Cassette Tape	8-888-004-00	———	video head cleaning
J-17	Adjusting blade-tip screwdriver	7-700-731-0		variable resistor adjustment

Notes: 1. When ordering the Jig Nos. J-1 and J-2, be sure to place the order for these together as a set.
2. Alignment tape KR5-1H is also available, but when ordering new alignment tape, be sure to order KR5-2H.

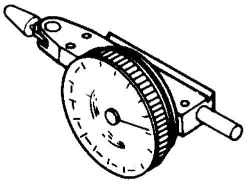
J−1



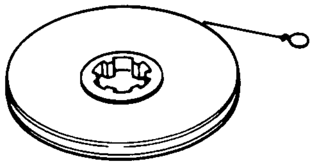
J−2



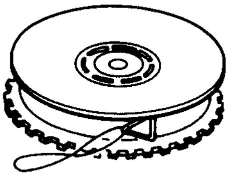
J−3



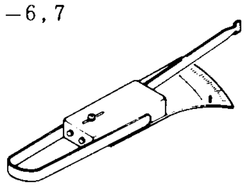
J−4



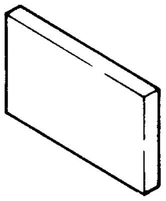
J−5



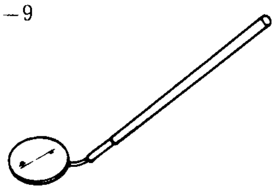
J−6, 7



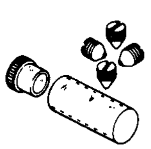
J−8



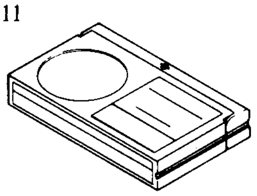
J−9



J−10

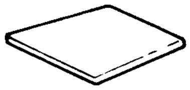


J−11

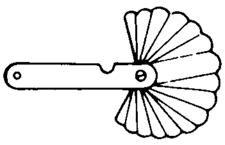


J−12

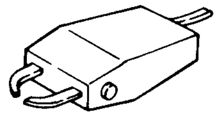
J−13



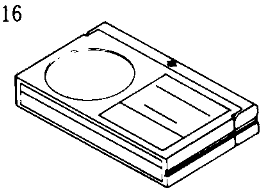
J−14

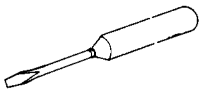


J−15



J−16





SECTION 2
PERIODIC CHECK AND MAINTENANCE

- It is recommended that the following periodic checks and maintenance be performed in order to obtain full function and performance of the machine and to extend tape and machine life.

2-1. POST-REPAIR MAINTENANCE

The following maintenance must be performed after repair, regardless of the operating hours of the machine.

1) Cleaning of video head disc assembly
    - Press chamois (Ref. No. J-13) saturated with cleaning fluid (Ref. No. J-12) lightly again the assembly and turn the fan on the drum slowly by hand to clean. (Never try to clean the assembly with the motor running.)
    - Also, never move the chamois vertically against the head tips, or they will be damaged.

2) Cleaning of the tape movement system
    - Clean the surfaces which the tape contacts during its movement (tape guides, drum assembly, capstan, pinch roller) with chamois saturated with cleaning fluid.

3) Cleaning of the driving system
    - Clean the driving elements (belts, idlers, reel table surfaces) with a piece of cloth saturated with cleaning fluid.

2-2. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to user's operating hours.

○ Cleaning ◎ Lubrication ★ Replacement ☆ Confirmation

		Operating Hour (H)	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Maintenance & Check		Replacement Part No.											
Tape Movement System	Cleaning of tape movement system	—	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning & degaussing of ACE ass'y	—	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of video head disk ass'y	A-6762-038-A	○	○	○	○	○	○	○	○	○	○	The life of a head varies, depending on operational conditions and methods.
Driving System	Lubrication of thrust retainer	—	–	◎	–	◎	–	◎	–	◎	–	◎	Apply a drop of oil (such as sewing machine oil) on each of upper and lower bearings.
	Lubrication of thrust bearing (under reel table)	—	–	–	◎	–	–	◎	–	–	◎	–	Remove reel table and apply a drop of oil (such as sewing machine oil) on thrust bearing.
	Cleaning & replacement of capstan belt	3-671-253-01	○	○	★	○	○	★	○	○	★	○	• Cleaning must be done whenever repair is made.
	Cleaning & replacement of belts other than capstan belt	—	○	○	○	○	○	○	○	★	○	○	• Replacement must be done depending on operating hours on the table, or every two years.
	FF belt	3-671-077-00	–	☆	–	★	–	☆	–	★	–	☆	
	Replacement of FWD limiter	A-6740-072-A	–	☆	–	★	–	☆	–	★	–	☆	
	Cleaning of iron core and opening of solenoid	—	–	–	–	○	–	–	–	○	–	–	Wipe iron core and opening of solenoids with a dry cloth.
Performance Confirmation	Abnormal sound	—	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which makes abnormal sound.
	Measurement of FWD back tension	—	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to Section 3-17. Specified value: 35 ~ 45g. (when measured with jig tape)
	Confirmation of brake system	—	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to Section 3-16.
	Confirmation of record & playback functions	—	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.

- Belts other than capstan belt

FWD belt	:	3-671-078-00
Threading belt	:	3-671-098-00
Counter belt	:	3-671-094-00
Relay belt	:	3-671-120-00

(Note on Overhaul)

Part replacement must be done in the overhaul operation, referring to the listed items. The replacement periods of the motor and the head which are not included in the chart items are as follows.

Full erase head . . . . . about 4,000 operating hours
Capstan motor . . . . . about 2,000 operating hours

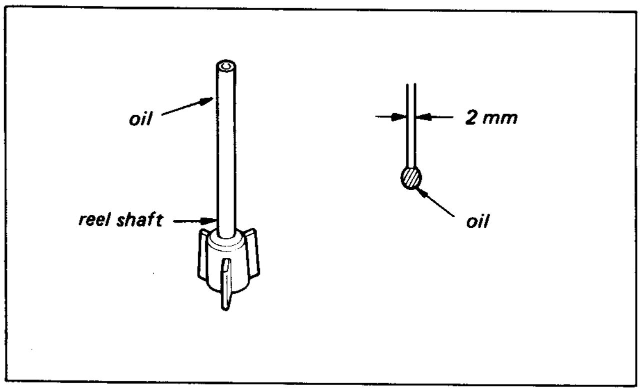
2-3. OTHERS

Lubricating Oil

- Be sure to use SONY oil (or equivalent) for lubrication. (A different viscosity oil may cause problems.)

  SONY Oil: Part No. 7-661-018-01

- When lubricating bearings, make sure there is no dust or other foreign material in the oil. (Dust, etc. may cause friction or burning of the bearing.)
- The quantity of "a drop of oil" is the amount which will stick to the tip of a 2 mm. diameter stick, as shown in the illustration.



SECTION 3
CHECK, ADJUSTMENT AND REPLACEMENT PROCEDURES

3-1. REPLACEMENT OF VIDEO HEAD DISC ASSEMBLY AND ECCENTRICITY ADJUSTMENT

1) Remove the video head disc assembly following steps 1–6, shown in Fig. 3-1.

Note:
- To remove fan ①, press ⑥down and move in the direction of the arrow.
- Never loosen the two setscrews that fasten the lower flange to the drum shaft.
- Never loosen the lower two screws of the drum support.
- Prior to installing the video head disc assembly⑥, clean surfaces A and B with a piece of cloth saturated with methanol or isopropyl alcohol.

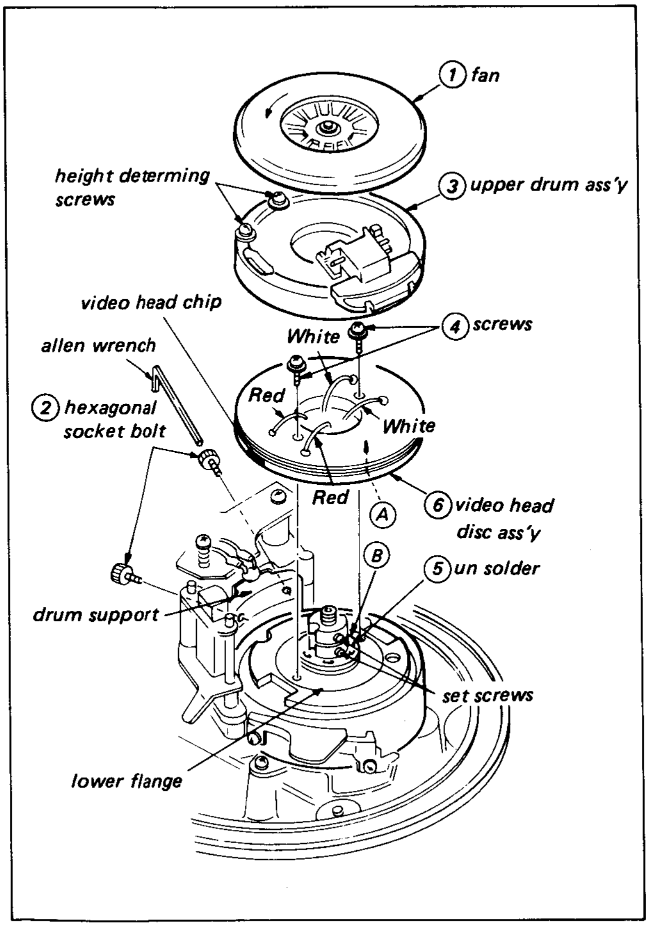

① fan
height determing screws
③ upper drum ass'y
video head chip
allen wrench
White
④ screws
② hexagonal socket bolt
Red
White
Red
Ⓐ
⑥ video head disc ass'y
Ⓑ
⑤ un solder
drum support
set screws
lower flange

Fig. 3-1. Replacement of video head disc assembly

2) Tentatively install the video head disc assembly and perform the eccentricity adjustment.

(i) Combine adjusting jig parts ①,② and ③ as shown in Fig. 3-2. Set the eccentricity gauge assembly on the machine by mounting it in the adjustment hole, as shown.

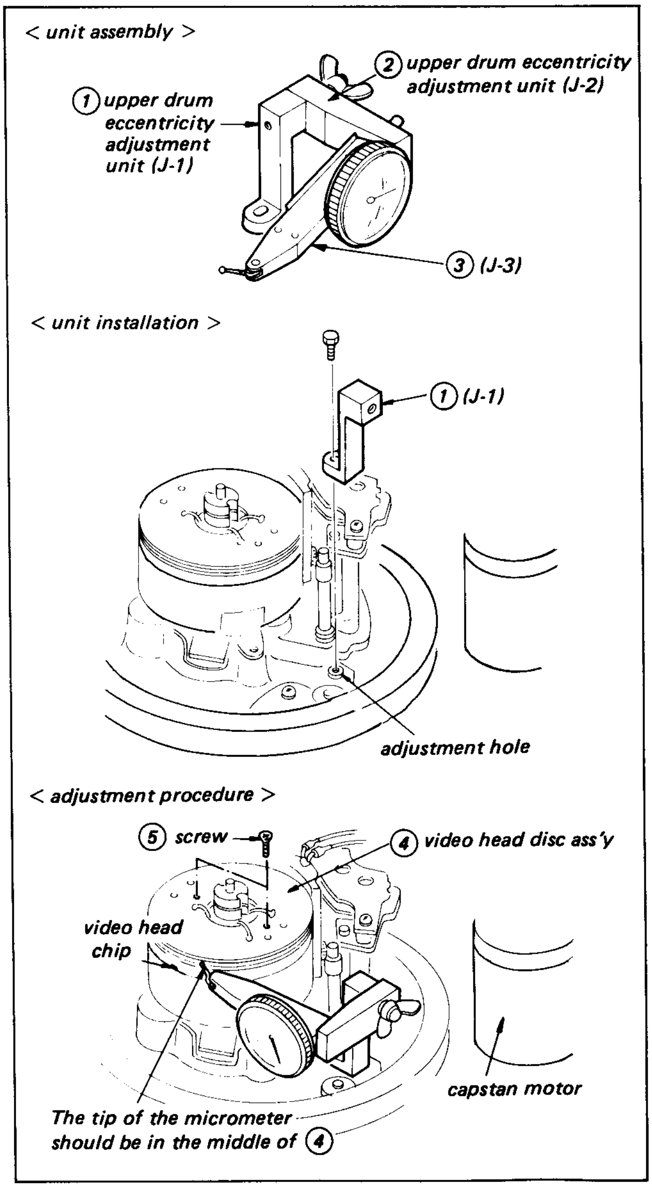
(ii) Turn the shaft of the drum counterclockwise slowly with the fingers and adjust the video head disc position so that the variation in the reading of the drum eccentricity adjusting gauge is within 5 μm during each turn of the drum, by very gently tapping a screwdriver wrapped in cloth against the outer circumference of the video head disc assembly④.

Note: Be careful not to damage video head tip.

(iii) Tighten the screws ⑤ that secure the video head disc assembly ④ alternately and gradually after the eccentricity adjustment is completed. (tightening torque; more than 10 kg./cm.)

(iv) After the screws are tightened, confirm again that the eccentricity deflection is within 5 μm.

(v) Solder the four leads of the head and remount the upper drum assembly while pressing down the upper drum height determining screws. (See Fig. 3-1)


< unit assembly >
② upper drum eccentricity adjustment unit (J-2)
① upper drum eccentricity adjustment unit (J-1)
③ (J-3)
< unit installation >
① (J-1)
adjustment hole
< adjustment procedure >
⑤ screw
④ video head disc ass'y
video head chip
capstan motor

The tip of the micrometer should be in the middle of ④

Fig. 3-2. Video head disc assembly eccentricity adjustment

3) Perform the following adjustments after replacement of the video head disc assembly.

3-18-1.	tape path adjustment
3-18-4.	ACE assembly position adjustment
3-18-5.	video head dihedral adjustment
4-3-1.(2)	RF switching position adjustment
4-3-1.(3)	REC mode servo lock phase adjustment
4-4.	Video system alignment

3-2. REPLACEMENT OF DRUM ASSEMBLY

1) Remove the two screws ① and connectors ② and ③ shown in Fig. 3-3. The drum assembly can then be removed.

2) As shown in Fig. 3-4, remove the rotor assembly by inserting longnose pliers or a screwdriver into the rotor hole, remove N5ϕ nut and SW5ϕ washer, then pull off the rotor assembly.

3) Remove the screw in Fig. 3-4 and pull off the stator assembly.

4) Install the rotor and stator assemblies removed in steps 4 and 5 on the new drum assembly.

Note: Install the stator assembly so that the 3P connector fits into the slot of the shield case assembly.

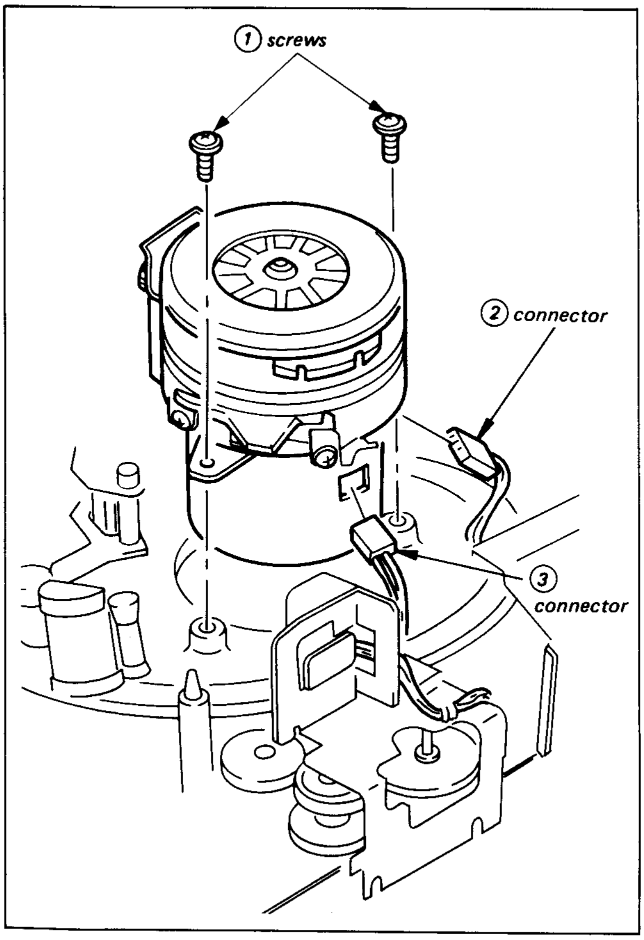

① screws
② connector
③ connector

Fig. 3-3. Replacement of drum ass'y (1)

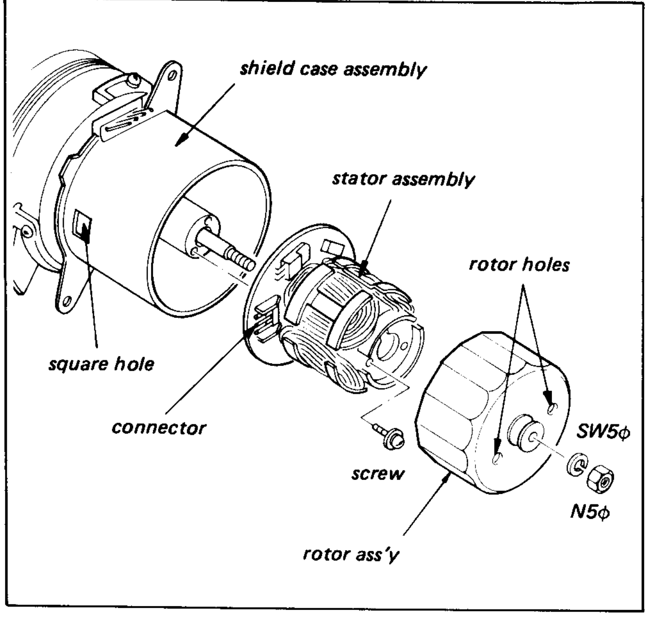

shield case assembly
stator assembly
rotor holes
square hole
connector
SW5ϕ
screw
N5ϕ
rotor ass'y

Fig. 3-4. Replacement of drum ass'y (2)

5) Installing connectors
As shown in Fig. 3-5, pull the connectors in the direction of the arrow so that the leads do not touch threading gear (B).

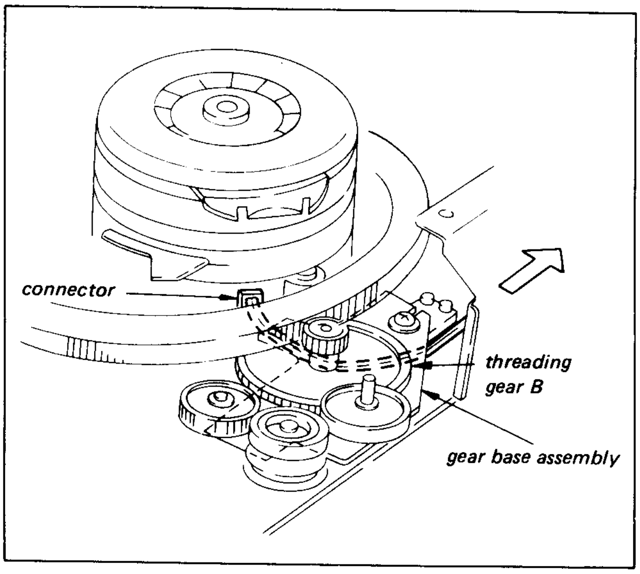

connector
threading gear B
gear base assembly

Fig. 3-5. Replacement of drum ass'y (3)

6) Perform the following adjustments after replacement

3-18-1.	Tape path adjustment
3-18-4.	ACE assembly position adjustment
4-3-1.	Drum servo system adjustment
4-4.	Video system alignment

3-3. REPLACEMENT OF CAPSTAN DC MOTOR

1. Stand the machine on its left side. Open the YC-18 board.
2. As shown in Fig. 3-6, remove the three screws ① and remove capstan belt ②.
3. Remove the DC motor from the drum base.
4. As shown in Fig. 3-7, pull out connector ① from the DR board, and remove connecting band ②.

   Note: The capstan motor should be in parts code A condition (A-6737-103- , pulley inserted).

5. After replacement, perform capstan free speed adjustment, 4-3-2(1).

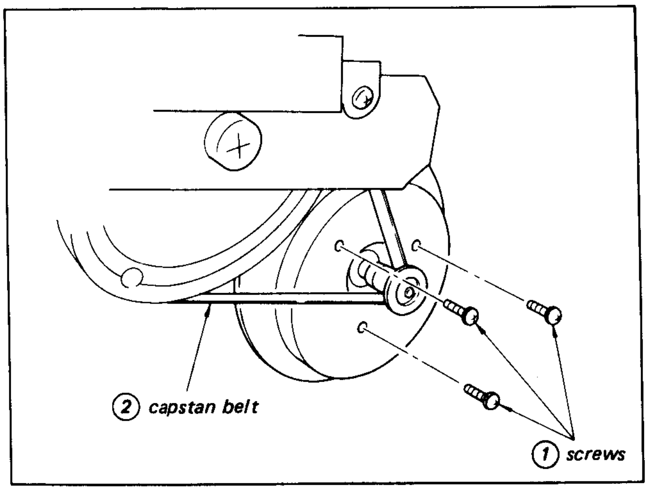

② capstan belt
① screws

Fig. 3-6. Replacement of capstan DC motor (1)

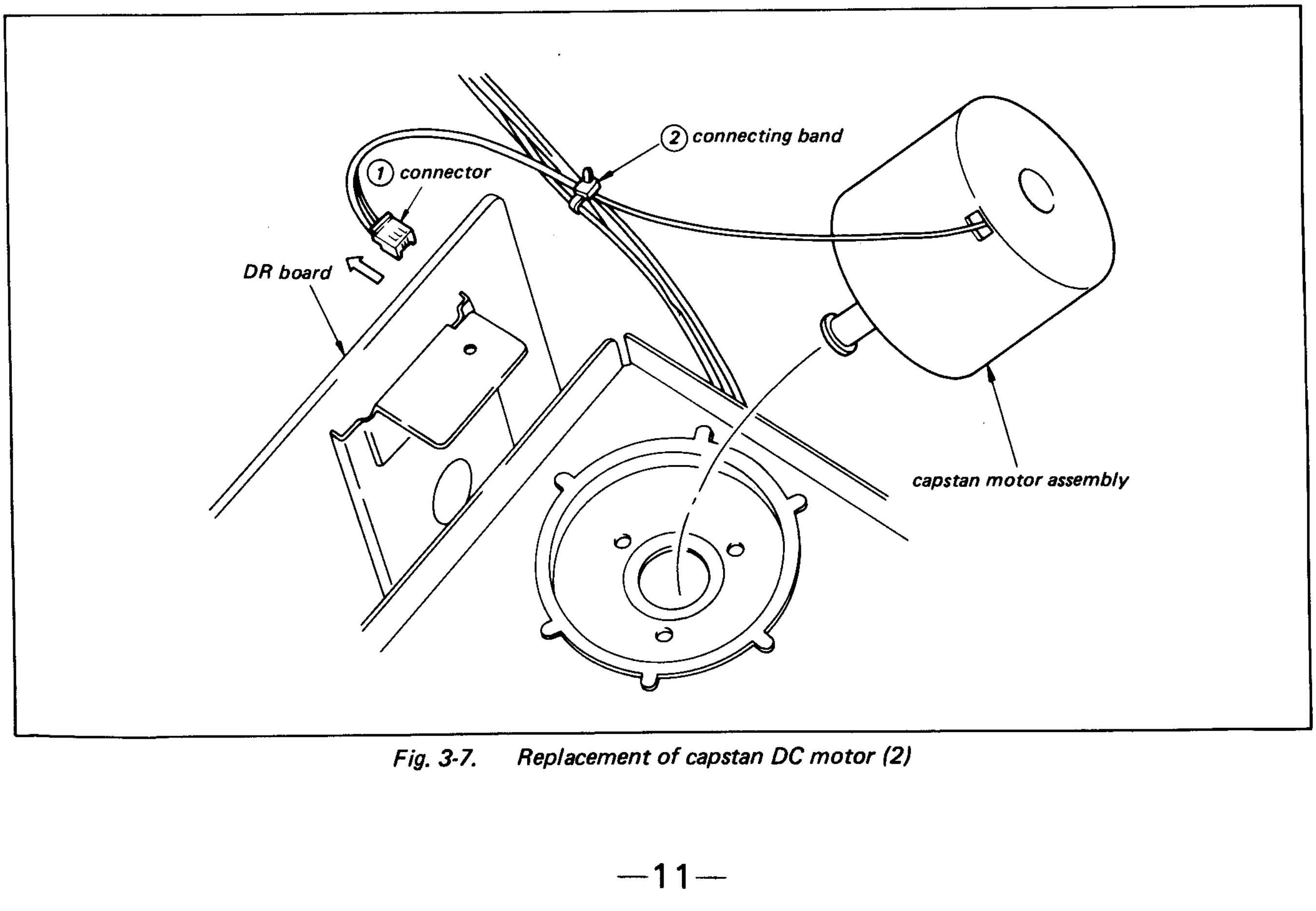

② connecting band
① connector
DR board
capstan motor assembly

Fig. 3-7. Replacement of capstan DC motor (2)

3-4. REPLACEMENT AND ADJUSTMENT OF TENSION REGULATOR ARM PLATE AND TENSION REGULATOR BAND ASSEMBLY

The tension regulator arm replacement must be done carefully, following the procedure below, because tape interchangeability is affected by the tension regulator arm operation.

3-4-1. When Brake Band Assembly is Replaced:

1) The brake band

1) The brake band assembly can be removed after removing fook⑥, screw ④ shown in Fig. 3-8 Ⓑ.

2) Perform tension regulator FWD position adjustment described below after the replacement.

   (i) Place the machine into STOP mode without cassette installed. (Refer to Section 1-3)

   (ii) Set up the PLAY mode.

   (iii) Move the brake band ⑤ in the direction of the arrow as shown in Fig. 3-8Ⓑ, so that it is positioned as shown in section Ⓐ in Fig. 3-8. Then tighten screw④.

   (iv) Perform the FWD back tension adjustment, section 3-17, after the replacement.

3-4-2. When Tension Regulator Arm Plate is Replaced:

1) The tension regulator arm plate is removed by removing screw①, stop ring ② and the hook side of the brake band assembly③. (See Fig. 3-8 Ⓑ)

2) After replacement, perform tension regulator stop position adjustment and forward position adjustment as follows:

   (i) Set up STOP condition, without cassette installed.

   (ii) As shown in Fig. 3-8, loosen screw ① which holds the tension regulator arm assembly, insert a bladetip screwdriver into section Ⓔ and adjust until the condition shown in Ⓒ in Fig. 3-8 is obtained. Tighten screw ①.

   (iii) Set up PLAY mode.

   (iv) As shown in Fig. 3-8, loosen screw④, and move the brake band ③ in the direction of the arrow. Tighten screw ④ when the condition shown in Ⓐ is obtained.

   Note: Confirm that the clearance at section Ⓓ is more than 0.2 mm.

   (v) Repeat steps (i)–(iv) again and confirm that the adjustment has been properly performed within the specifications.

   (vi) After installing, perform FWD back tension adjustment, 3-17.

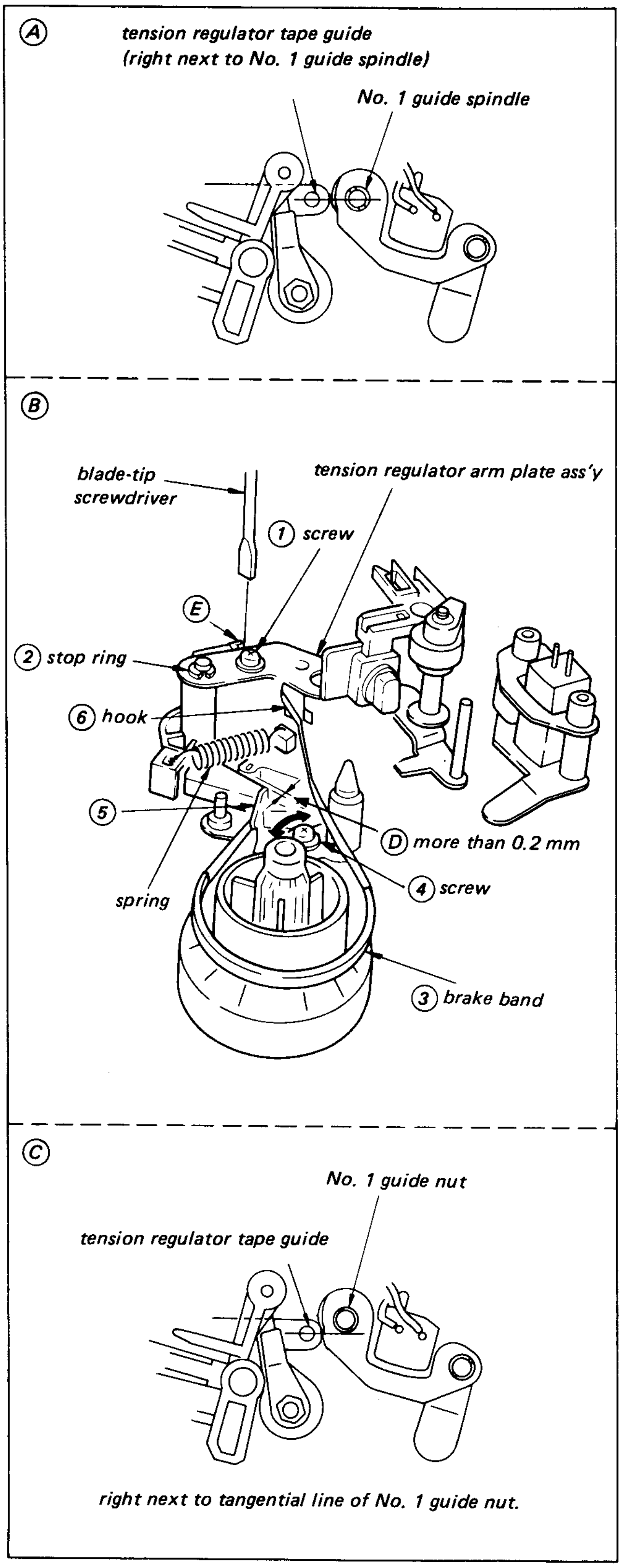

Ⓐ
tension regulator tape guide
(right next to No. 1 guide spindle)
No. 1 guide spindle
Ⓑ
blade-tip screwdriver
tension regulator arm plate ass'y
① screw
Ⓔ
② stop ring
⑥ hook
⑤
Ⓓ more than 0.2 mm
④ screw
spring
③ brake band
Ⓒ
No. 1 guide nut
tension regulator tape guide
right next to tangential line of No. 1 guide nut.

Fig. 3-8. Replacement and adjustment of tension regulator arm plate ass'y and brake band ass'y

3) Play back the TRACKING segment of the alignment tape (KR5-1H or 2H). Loosen the lock screw and adjust screw "a" in Fig. 3-9 so that the RF waveform becomes flat (see the waveform in tape path adjustment, section 3-18-1) when the TRACKING knob is turned right and left from the center detent position, and so that the tape does not separate from the flanges of guides ①, ② and ③ shown in Fig. 3-9, and so that a large curl does not appear at the guides.

Note: Do not turn screw "a" more than 90° in either direction from its initial position.

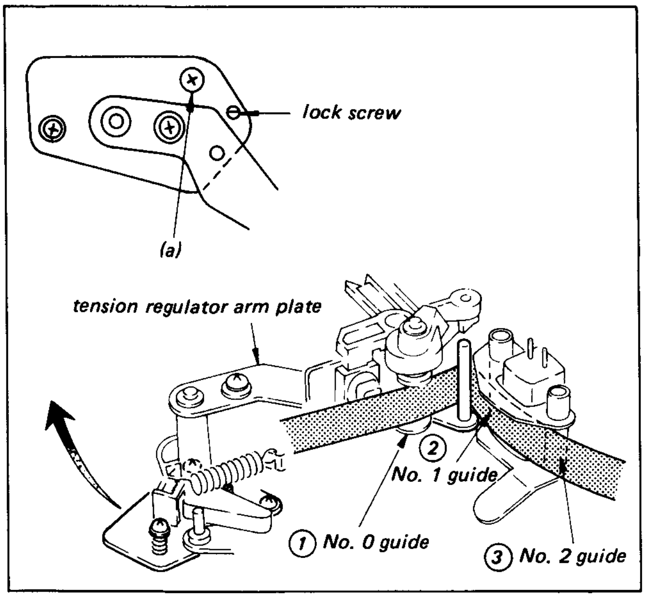

lock screw
(a)
tension regulator arm plate
② No. 1 guide
① No. 0 guide
③ No. 2 guide

Fig. 3-9. Replacement and adjustment of tension regulator arm plate (1)

4) Confirm that there is not a large bending of the tape at the tension regulator guide pin section and the No. 0 guide section shown in Fig. 3-10 after the completion of the adjustment. If bending appears, repeat step 3.

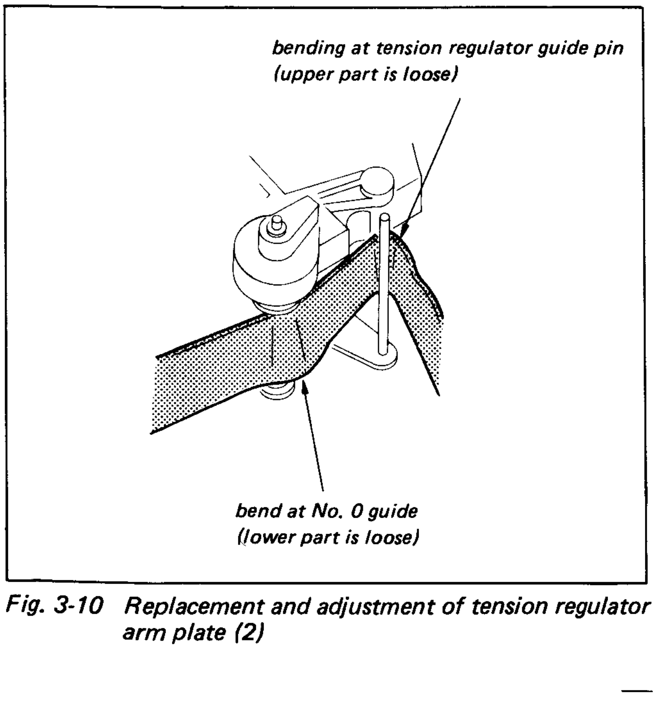

bending at tension regulator guide pin
(upper part is loose)
bend at No. 0 guide
(lower part is loose)

Fig. 3-10 Replacement and adjustment of tension regulator arm plate (2)

3-5. REPLACEMENT OF FRONT LOADING ASSEMBLY (CASSETTE LIFT ASSEMBLY)

1) Set the cassette lift in the unthreading condition.

2) Remove the connector (black, 6P) between the DR board and the TT-5 board CN101.

3) Remove the wires from the skeleton switch to the TT-5 board from the wiring holder ① and remove the four screws ②.

4) See Fig. 3-11 for re-installation of the front loading.

Note: Make sure that the three wires between the TT-5 board and the skeleton do not touch the gears or any other moving parts.

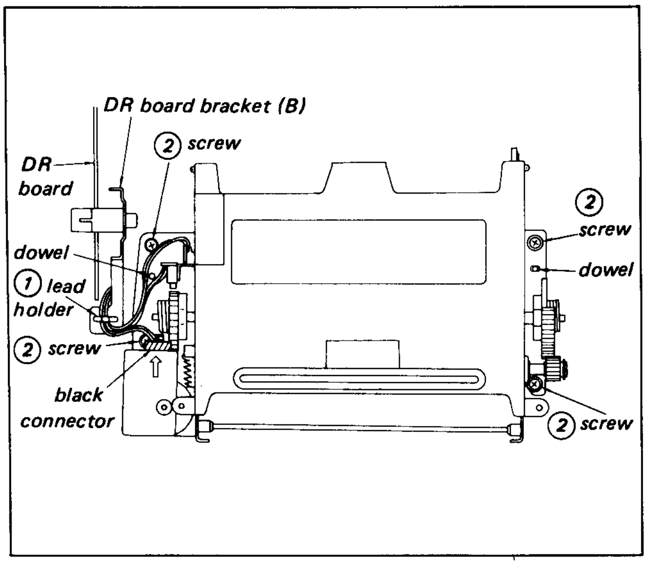

DR board bracket (B)
② screw
DR board
dowel
① lead holder
② screw
black connector
② screw
dowel
② screw

Fig. 3-11. Replacement of front loading ass'y (cassette lift ass'y)

5) After re-installation, turn the stand by switch ON, insert a cassette, and confirm that threading, unthreading EJECT functions all operate properly.

6) Raise the cassette lift and adjust the lid opener position as explained in section 3-9.

3-6. ADJUSTMENT OF REEL TABLE HEIGHT

- Since the reel table height serves as the reference for the tape movement system, the height must be adjusted carefully after reel table replacement.

1) Measure the height of the reel table with a slide caliper prior to the removal of the old reel table. (See Fig. 3-12)

2) Position a new reel table, measure its height, and adjust the height by adding or removing the adjusting spacer so that the difference in the heights of the former and new reel tables is within 0.1 mm. (See Fig. 3-12)

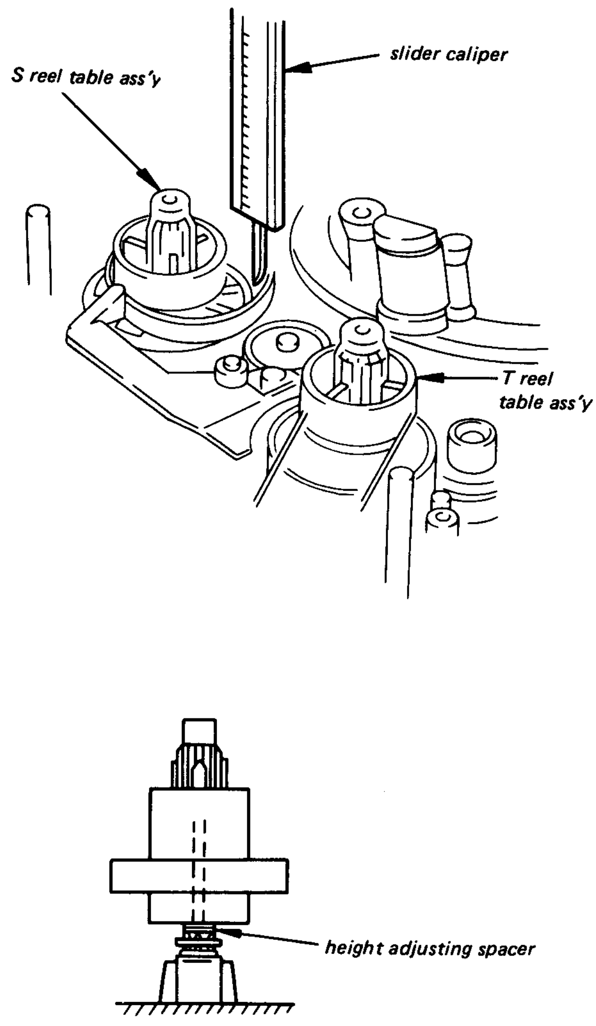

S reel table ass'y
slider caliper
T reel table ass'y
height adjusting spacer

Fig. 3-12. Adjustment of reel table height

3-7. FUNCTION SOLENOID POSITION ADJUSTMENT

BS: Bracket & Select
FF: Fast Forward
FE: Forward & Eject

3-7-1. BS, FF, FE Solenoid Position Adjustment

As shown in Fig. 3-13, these three solenoids activate each function, and the adjustment must be performed very carefully.

1) Set up the STOP condition without cassette installed.

2) As shown in Fig. 3-13, remove the four hooks① holding the FS-22 board and open it in the direction of arrow Ⓐ .

3) Confirm that each solenoid operates as follows for Play, Fast Forward, Rewind. (Pause, threading and eject functions)

• Playback:	FE solenoid activates after BS solenoid activates
• Fast Forward:	FF solenoid activates after BS solenoid activates
• Rewind:	Only the BS solenoid activates
• Eject:	BS solenoid activates after the FE solenoid
• Threading:	Only the BS solenoid activates
• Pause:	from playback state, BS solenoid stops

4) Perform confirmation adjustment for each solenoid position.

   This adjustment is performed with a blade-tip screwdriver, at the front and back of each solenoid, at the bent-up portion of the chassis to which each one is attached.

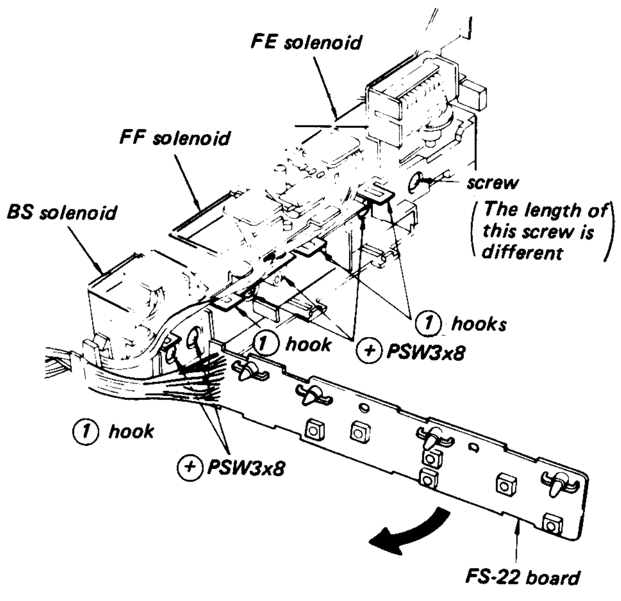

FE solenoid
FF solenoid
BS solenoid
screw
(The length of this screw is different)
① hooks
① hook
⊕PSW3x8
① hook
⊕PSW3x8
FS-22 board

Fig. 3-13. Function solenoid position adjustment

(i) BS Solenoid Adjustment (REW mode)

- As shown in Fig. 3-14a, adjust the solenoid so that there is 0 – 0.1 mm clearance between the BS slide plate ① and the end of the RO slide plate ②.

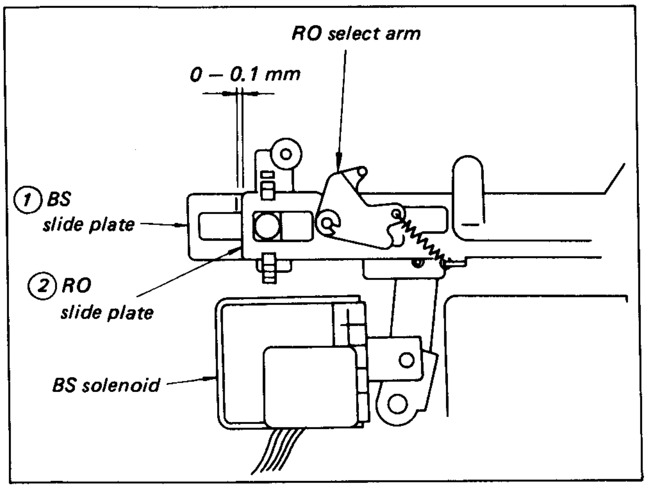

RO select arm
0 – 0.1 mm
① BS slide plate
② RO slide plate
BS solenoid

Fig. 3-14a. BS solenoid adjustment

(ii) FF Solenoid Adjustment (FF mode)

- As shown in Fig. 3-14b, adjust the solenoid so that there is 1 mm – 0.2 mm clearance between the BS slide plate ① and the end of RO slide plate ② when viewed from directly above.

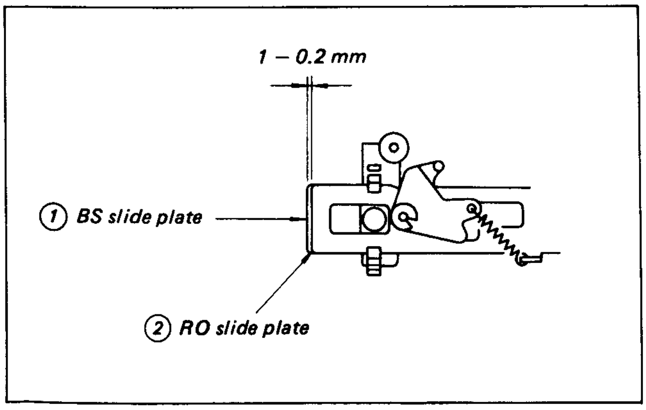

1 – 0.2 mm
① BS slide plate
② RO slide plate

Fig. 3-14b. FF solenoid adjustment

(iii) FE Solenoid Adjustment (PLAY mode)

- As shown in Fig. 3-14c, adjust the solenoid so that there is 0 – 0.1 mm clearance between the FE slide plate ① and the end of the BS slide plate ② when viewed from directly above.

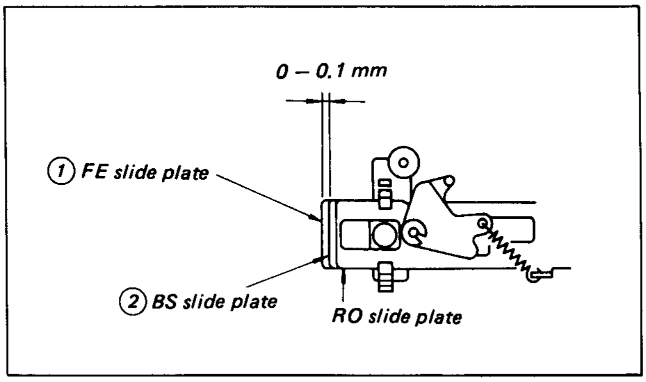

0 – 0.1 mm
① FE slide plate
② BS slide plate
RO slide plate

Fig. 3-14c. FE solenoid adjustment

3-8. ADJUSTMENT OF THREADING AND UNTHREADING

3-8-1. Position Adjustment of Threading Drive Section Assembly

Note: Confirm that section 3-10, step 7-(v) ring roller unit position adjustment, has been performed before starting this adjustment.

1) Set up unthreading completion state without an inserted cassette and turn off the stand by switch.

2) Loosen the two screws①, shown in Fig. 3-15, 90° ~ 180°, insert a blade-tip screwdriver into section Ⓐ, and adjust the gear base assembly④ so that there is about 0.4 mm of play between threading ring ② and threading gear ③, then tighten screws①.

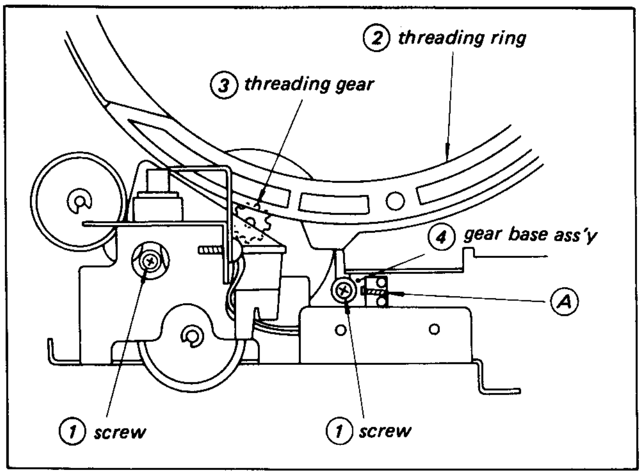


Fig. 3-15. Threading/unthreading adjustment

3-8-2. Adjustment of Pinch Control Plate

Note: Confirm that section 3-10, step 7-(v), ring roller unit position adjustment, has been performed before starting this adjustment.

1) Set up the unthreading completion state without a cassette inserted and turn off the power.

2) As shown in Fig. 3-16, loosen the two screws①, and adjust so that there is a space of 0.5 mm all around between the threading ring②and the pinch control plate③, then tighten the screws①.

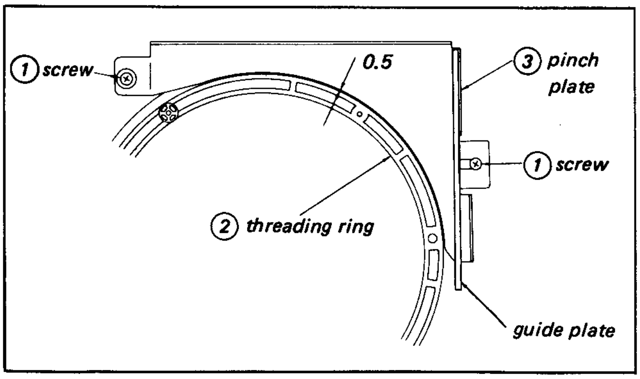


Fig. 3-16. Pinch control plate adjustment

3-8-3. Clearance Adjustment of Ring Arm

Note: Complete section 3-8-1, Position Adjustment of Threading Drive Section Assembly, before starting this adjustment procedure.

If the ring arm is not adjusted properly, there is a danger of the following problems occurring, so perform this adjustment very carefully:

- During PLAY, FF, REC and other modes, the threading ring may move from the threading completion position.
- Even after threading completion, the threading drive section assembly idler may not move, thus the reel motor cannot rotate.
- The REW idler may be drawn into the S-side reel, and threading cannot be performed.

1) Set up the STOP mode without cassette installed.

2) As shown in Fig. 3-17, loosen screw ① and adjust so that there is a space of 0–0.2 mm between the threading ring② and the roller③.

3) During step 2, by pushing the neck of R adjust plate assembly ④ in the direction of the arrow, the space between the threading pulley assembly ⑤ and the threading gear (D) ⑥ in Fig. 3-18 will be gently pushed in the direction of arrow Ⓐ, and tighten screw ① until the space is 0.2–0.5 mm.

4) Set up the unthreading completion state and turn off the stand by switch. At this time, confirm that the space in section Ⓐ of Fig. 3-17 is more than 0.2 mm. If there is no space, repeat the procedure from step 1.

5) Set up STOP mode again without a cassette. Confirm that the roller ③ in Fig. 3-17 drops into the threading ring ② cam and that the threading gear D⑥in Fig. 3-18 moves away from the threading pulley assembly⑤.

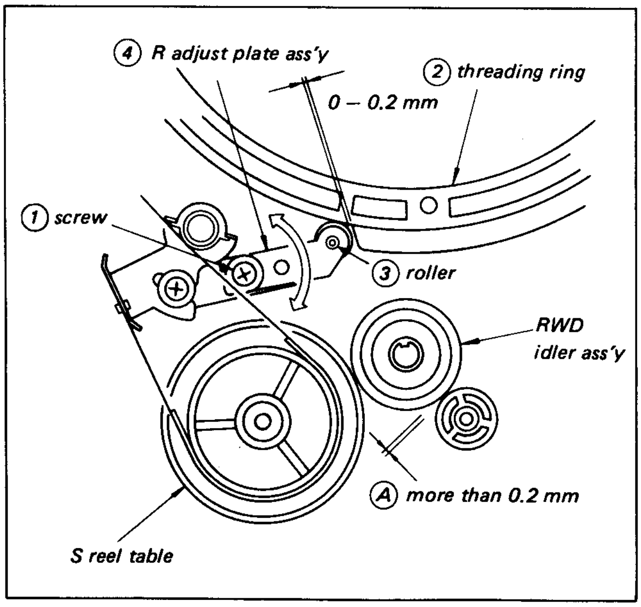


Fig. 3-17. Ring arm clearance adjustment (1)

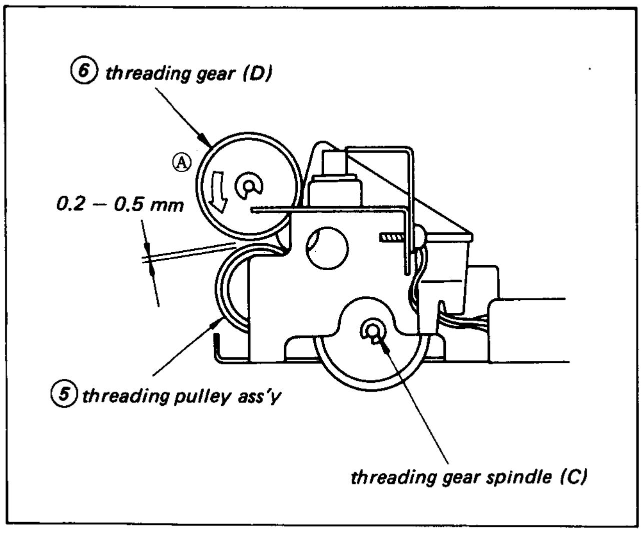

⑥ threading gear (D)
Ⓐ
0.2 – 0.5 mm
⑤ threading pulley ass'y
threading gear spindle (C)

Fig. 3-18. Ring arm clearance adjustment (2)

3-8-4. Check of Unthreading Completion

1) Set up the STOP condition without cassette. (Refer to section 1-3)
2) Set up the EJECT mode to complete the unthreading.
3) Confirm that the tension regulator arm plate assembly is in contact with the boss of the cassette position-determining post. (See Fig. 3-19)

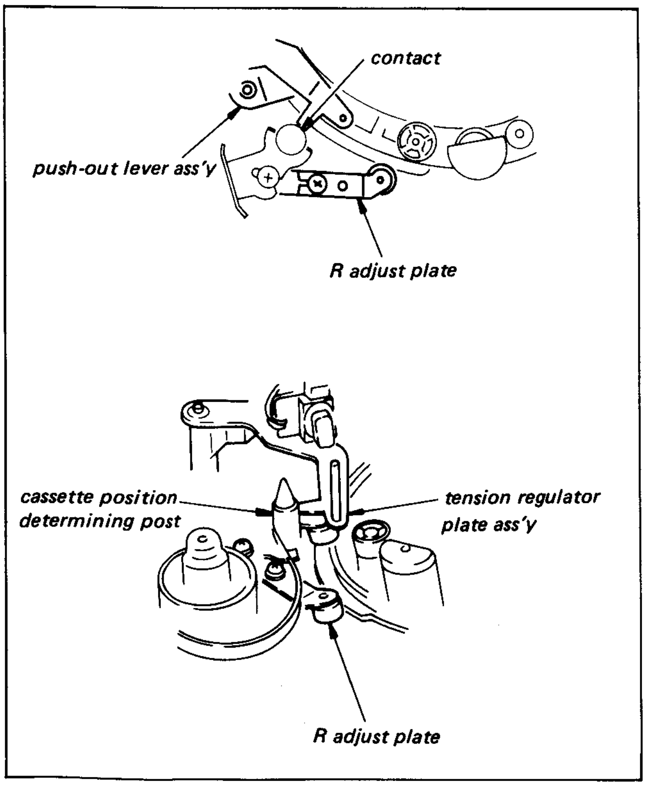

contact
push-out lever ass'y
R adjust plate
cassette position determining post
tension regulator plate ass'y
R adjust plate

Fig. 3-19. Ring arm clearance adjustment

3-9. POSITION ADJUSTMENT OF LID OPENER

1) Remove front loading section assembly. (See section 3-5)
2) Bend the lower section of the cassette lid opener bracket so that the cassette lid opener bracket positions itself almost at the center of the space marked by asterisk (※) in Fig. 3-20, when the cassette is placed on the four position determining posts. The cassette lid should be pushed in the direction of the arrow at this time.

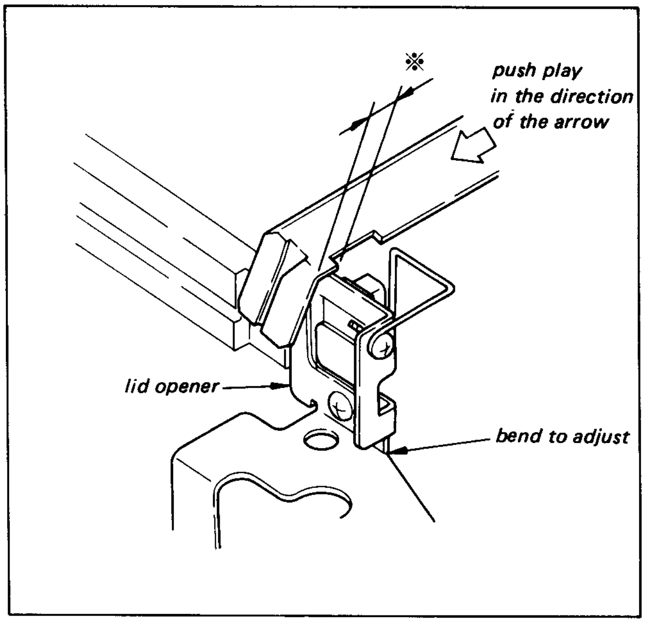

※
push play in the direction of the arrow
lid opener
bend to adjust

Fig. 3-20. Position adjustment of lid opener

3-10. REPLACEMENT AND ADJUSTMENT OF THREADING RING ASSEMBLY

1) Turn the threading ring to the point immediately before the threading completion position.

2) As shown in Fig. 3-21, remove the pinch control plate①, lid opener assembly②, R adjust plate③, No. 0 guide assembly ④, tension regulator lever assembly⑤, and slack sensor unit assembly⑥.

3) Loosen the ring roller unit assembly screw⑦. (See Fig. 3-22)

4) Loosen screw ① shown in 3-8-1, Fig. 3-15, and move the threading drive assembly⑧, shown in Fig. 3-21, fully away from the threading ring.

5) Loosen the two screws ⑩ holding the pinch press solenoid ⑨ (Fig. 3-23) and move it fully in the direction of the arrow.

6) Remove the threading ring.

7) Perform the following adjustments after replacement.

   (i) Pinch control plate adjustment (Refer to 3-8-2)

   (ii) R adjust plate adjustment (Refer to 3-8-3)

   (iii) No. 0 guide adjustment (Perform step 9)

   (iv) Slack sensor unit adjustment (Refer to 3-11-2)

   (v) Ring roller unit adjustment (See Fig. 3-22)

   (vi) Threading Drive Section Assembly Adjustment (Refer to 3-8-1)

   (vii) Adjustment Pinch Roller Press Solenoid (Refer to 3-11-1)

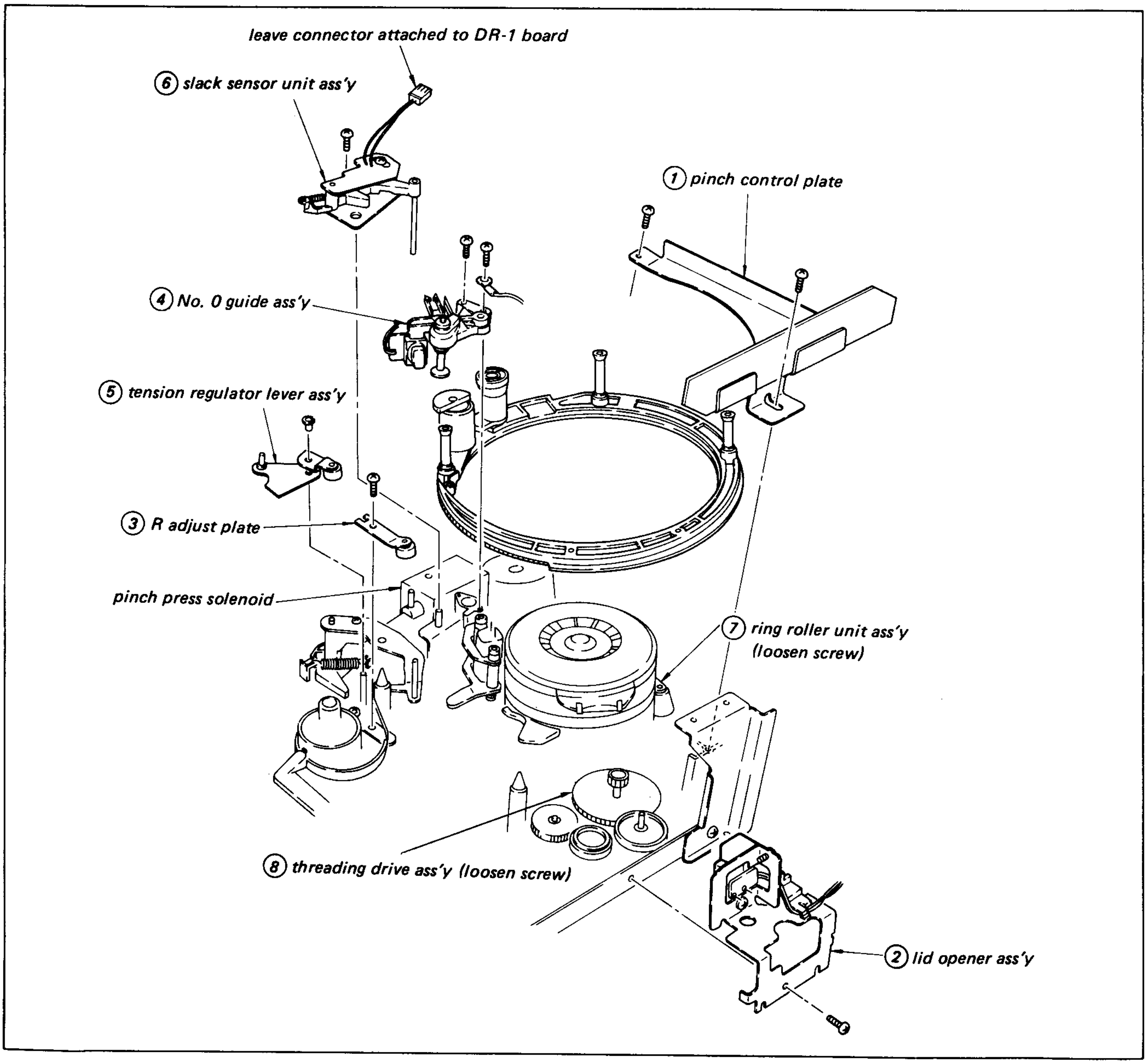

leave connector attached to DR-1 board
⑥ slack sensor unit ass'y
① pinch control plate
④ No. 0 guide ass'y
⑤ tension regulator lever ass'y
③ R adjust plate
pinch press solenoid
⑦ ring roller unit ass'y (loosen screw)
⑧ threading drive ass'y (loosen screw)
② lid opener ass'y

Fig. 3-21. Replacement and adjustment of threading ring ass'y

8) Perform threading and unthreading several times and confirm the smooth movement of the threading ring.

9) Adjustment after mounting No. 0 guide section assembly

   (i) Playback the TRACKING segment of the alignment tape (KR5-1H or 2H)

   (ii) Turn the TRACKING control knob so that the RF waveform is 2/3 of its maximum level. (See Fig. 3-24)

   (iii) Turn the No. 0 guide fully counterclockwise, then clockwise until the point where the RF waveform at the entry side becomes flat with minimal fluctuations. (See Fig. 3-24) Tighten the mounting screws at this point.

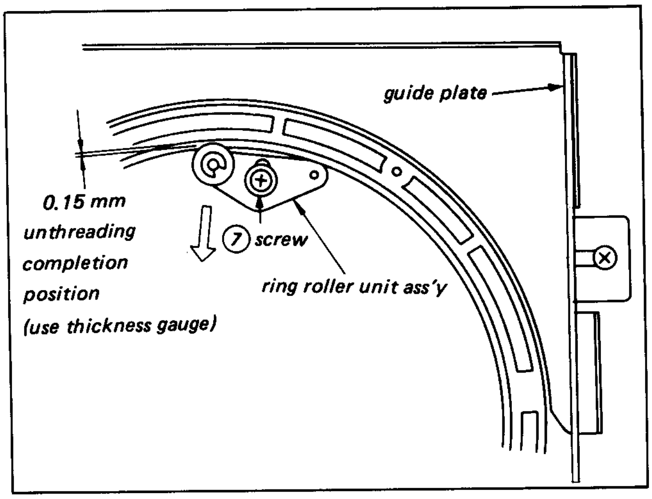

guide plate
0.15 mm
unthreading
completion
position
(use thickness gauge)
⑦ screw
ring roller unit ass'y

Fig. 3-22. Replacement and adjustment of threading ring ass'y

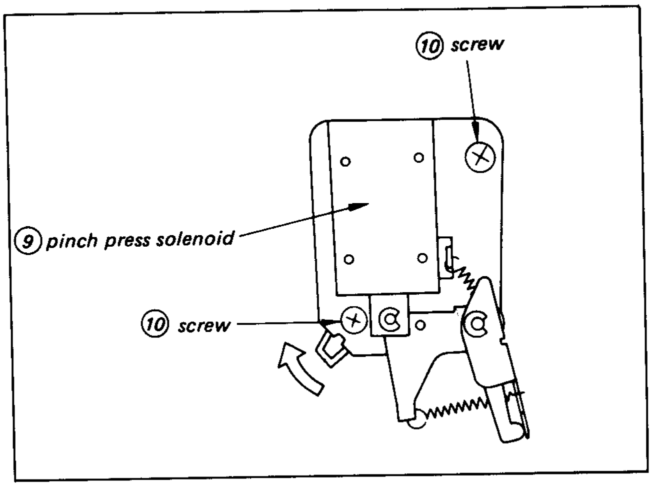

⑩ screw
⑨ pinch press solenoid
⑩ screw

Fig. 3-23.

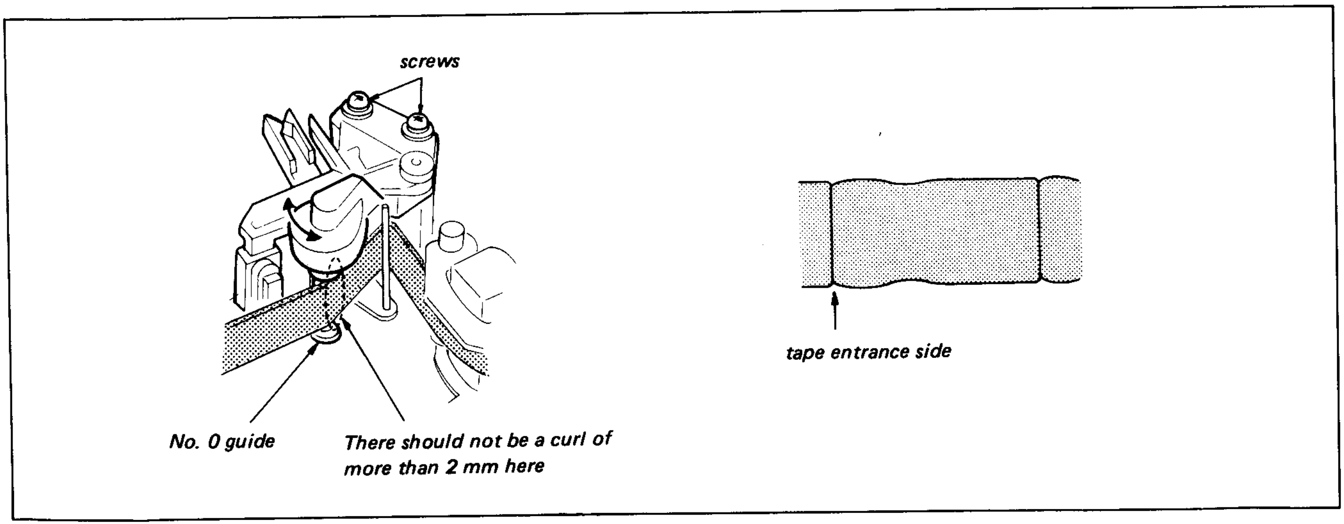

screws
No. 0 guide
There should not be a curl of more than 2 mm here
tape entrance side

Fig. 3-24. No. 0 guide position adjustment

3-11. ADJUSTMENT OF PINCH PRESS MECHANISM

3-11-1. Position Adjustment of Pinch Roller Press Solenoid

1) Set up STOP condition without a cassette.
2) Turn the two screws①, shown in Fig. 3-25, 1/2–1/3 turn to loosen.
3) Set up playback mode.
4) Insert a blade-tip screwdriver into the position indicated in the figure, move the pinch solenoid base ② in the direction of the arrow, and adjust so that the clearance at section Ⓐ is 0.6–1 mm. Tighten screws①.

Note: Be careful not to let the screwdriver come in contact with the DR-1 board.

3-11-2. Position Adjustment of Slack Sensor Operation

1) Set up STOP mode without a cassette.
2) Loosen the screw③ shown in Fig. 3-25.
3) Adjust the position of SL-1 board so that the specification in Fig. 3-26.

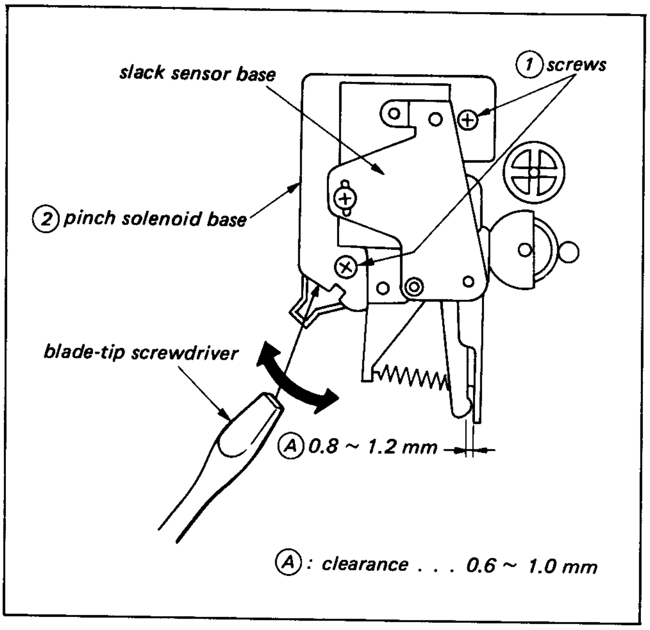

slack sensor base
① screws
② pinch solenoid base
blade-tip screwdriver
Ⓐ 0.8 ~ 1.2 mm
Ⓐ: clearance . . . 0.6 ~ 1.0 mm

Fig. 3-25. Position adjustment of pinch solenoid operation

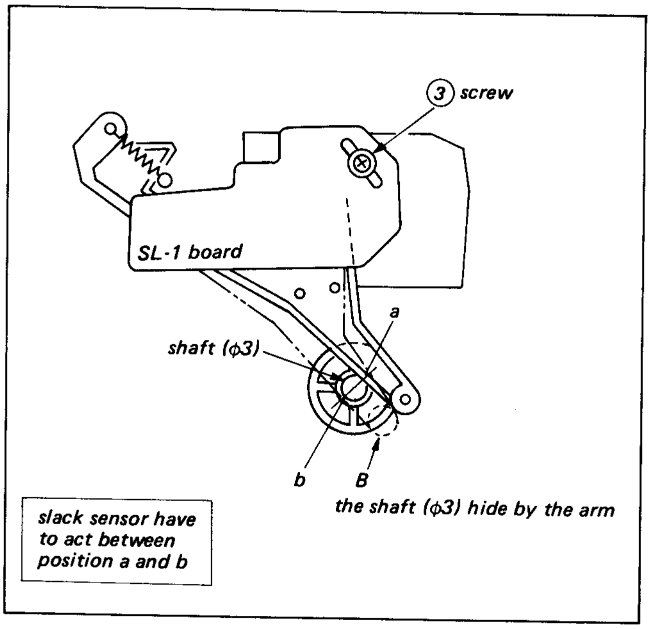

③ screw
SL-1 board
shaft (ϕ3)
a
b
B
the shaft (ϕ3) hide by the arm
slack sensor have to act between position a and b

Fig. 3-26. Position adjustment of slack sensor operation

3-12. POSITION ADJUSTMENT OF MICROSWITCH

3-12-1. Installation and Check of Erase Proof Switch

1) Insert dowel ① into hole②, as shown in Fig. 3-27, pull in the direction of arrow Ⓐ, and tighten screw③.

2) Place a cassette with unbroken erase proof hooks on the ④ cassette guide spindles and confirm that the erase proof switch goes on.

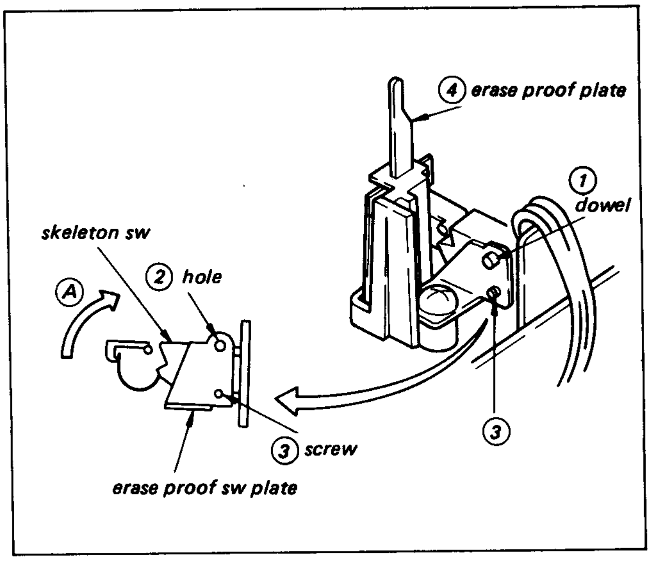


Fig. 3-27. Position adjustment of microswitch (1)

3-12-2. Position Adjustment of Threading End Switch and Operation Confirmation of Unthreading End Switch

Note: Before performing these adjustments, confirm that adjustments 3-8-1 and 3-8-3 have been completed. (Threading Drive Section Assembly Adjustment and Ring Arm Clearance Position Adjustment)

1) Set up unthreading completion state and turn the power off.

2) Position the set with the tuner side down.

3) Remove the bottom plate, and remove YC-18 board.

4) Loosen screw ① and adjust bracket ② so that the clearance at section Ⓐ is 0.3 mm, and tighten screw①. (See Fig. 3-28)

5) Turn the threading ring slowly by hand until it reaches threading completion state. Confirm that the clearance at section Ⓐ is not lost, and that the threading end switch ③ goes on when threading completion state is reached.

6) In the event that the clearance at section Ⓐ is lost while threading, loosen screw①, and adjust the bracket ② so that the clearance is maintained, then tighten screw①.

7) At the threading completion state, confirm that the unthreading end switch ④ is on.

8) Turn the threading ring slowly by hand until the unthreading completion state is reached, and confirm that the unthreading end switch ④ is released for the first time just before unthreading completion.

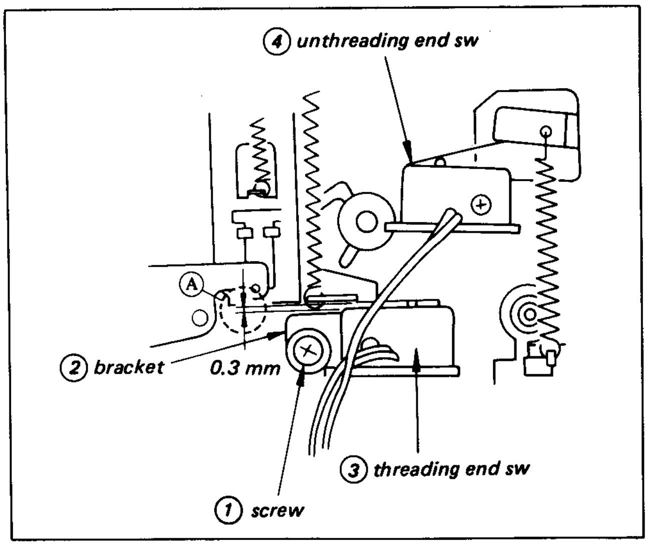


Fig. 3-28. Position adjustment of microswitch (2)

3-13. REPLACEMENT OF REEL MOTOR

3-13-1. Removal of Reel Motor

1) Remove YC-18 board.
2) As shown in Fig. 3-29, unsolder the harness and remove.
3) Remove the two screws ①.
4) Remove the two screws ② and the reel motor assembly ③. (See Fig. 3-30)
5) Peel off the tape and pull out the shield plate ④ claw to remove the reel motor assembly. (See Fig. 3-31)

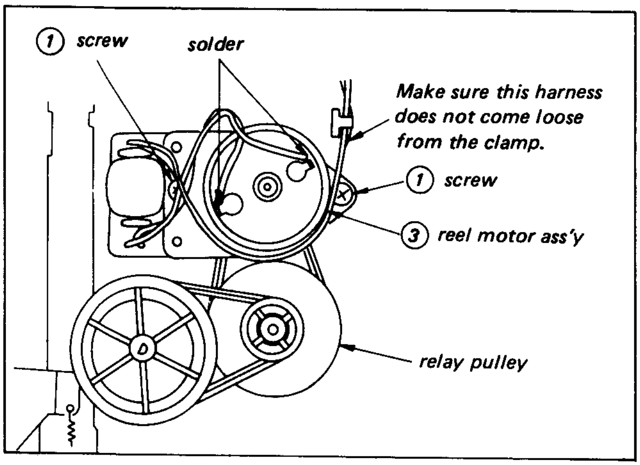

① screw
solder
Make sure this harness does not come loose from the clamp.
① screw
③ reel motor ass'y
relay pulley

Fig. 3-29. Reel motor replacement (1)

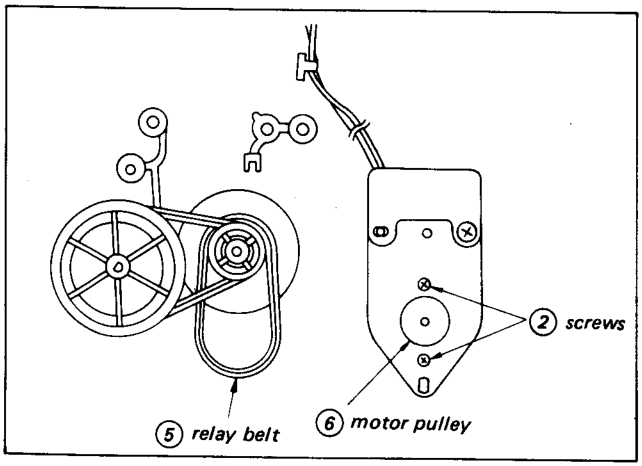

② screws
⑤ relay belt
⑥ motor pulley

Fig. 3-30. Reel motor replacement (2)

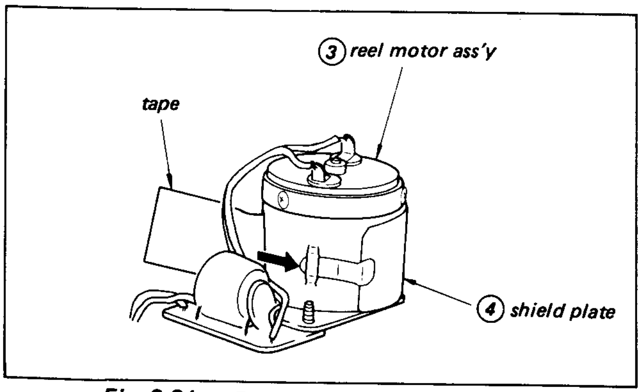

③ reel motor ass'y
tape
④ shield plate

Fig. 3-31. Reel motor replacement (3)

3-13-2. Re-installation of Reel Motor

1) Perform steps 4 and 5 of 3-13-1 in reverse.
2) Hook the relay belt ⑤ to the motor pulley ⑥ as shown in Fig. 3-30, and tighten the two screws ① as shown in Fig. 3-29.

   Note: Confirm that the relay belt ⑤ does not separate from the motor pulley ⑥. (See Fig. 3-32)
3) Solder the harness as shown in Fig. 3-33.
4) Set the harness as shown in Fig. 3-29.

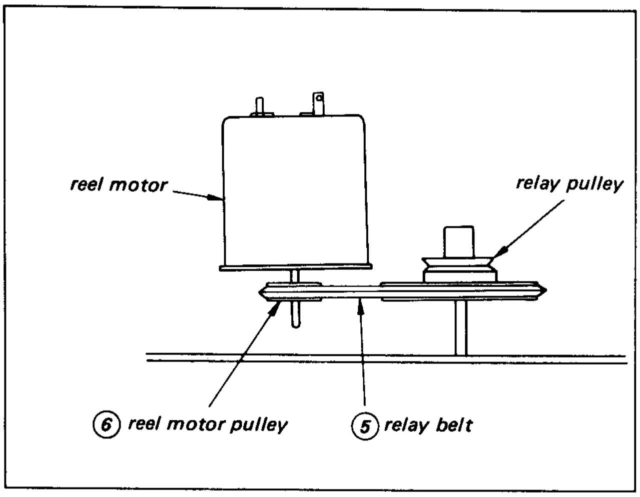

reel motor
relay pulley
⑥ reel motor pulley
⑤ relay belt

Fig. 3-32. Reel motor replacement (4)

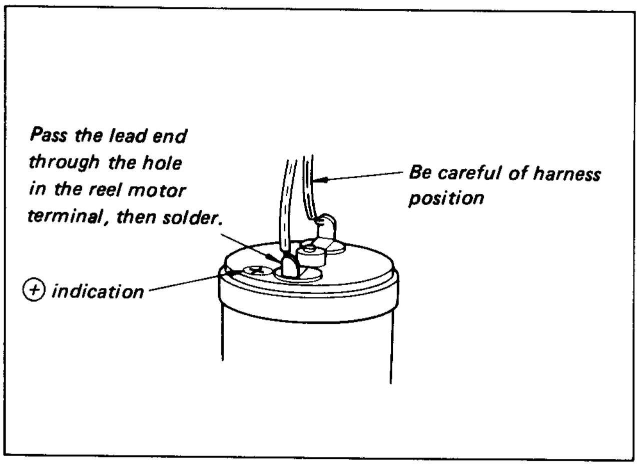

Pass the lead end through the hole in the reel motor terminal, then solder.
Be careful of harness position
⊕ indication

Fig. 3-33. Reel motor replacement (5)

3-14. REPLACEMENT AND ADJUSTMENT OF FRONT LOADING (CASSETTE LIFT) ASSEMBLY

3-14-1. Replacement of Front Loading (Cassette Lift) Upper and Lower Doors

1) Remove screw ① on the door hinge bracket assembly shown in Fig. 3-34.

2) Replace the upper and lower doors.
At this time, as shown in Fig. 3-35, engage the gears so that the edge of the door rack is in the same plane with the curved portion of the left plate.

3) Fix the door hinge bracket assembly in place with screw①.

4) Push both doors by hand to make sure they open and close smoothly.

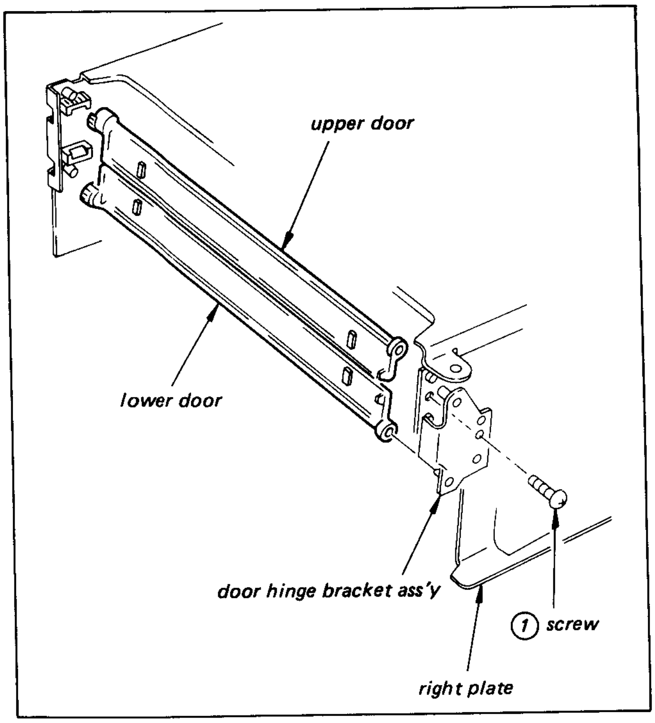

upper door
lower door
door hinge bracket ass'y
① screw
right plate

Fig. 3-34. Upper/lower door replacement (1)

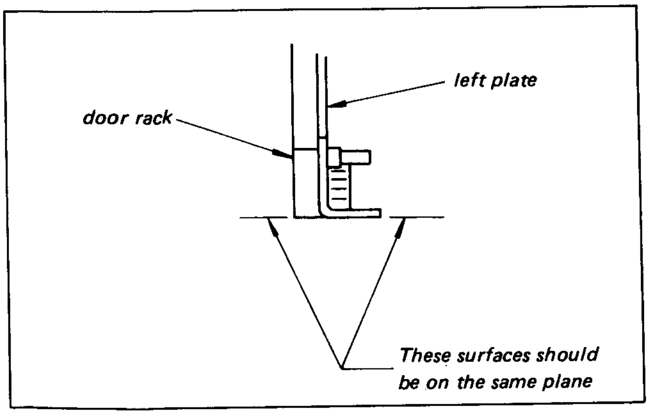

left plate
door rack
These surfaces should be on the same plane

Fig. 3-35. Upper/lower door replacement (2)

3-14-2. Replacement of Skeleton Switches (See Fig. 3-36)

1) Remove the screw ② from the switch holder and remove the holder.

2) Remove screw③ and the switch to be replaced.

3) Install the switch and tentatively tighten screw③. (When replacing C-IN, there is no need for tentatively tightening the screw; it can be completely tightened/tightening torque; 3 – 4 kg•cm)

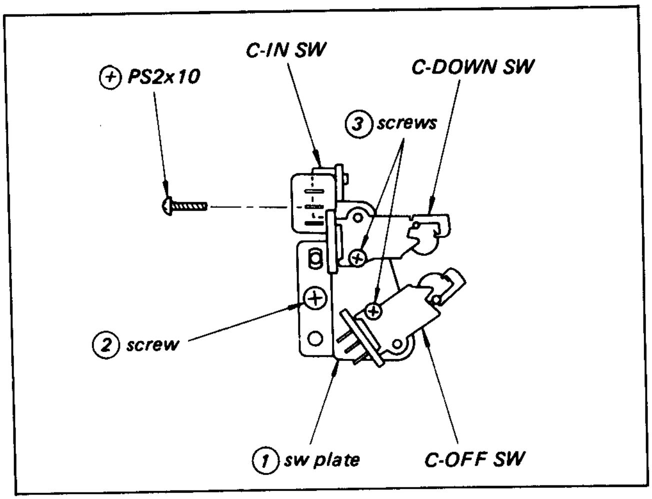

⊕ PS2x10
C-IN SW
C-DOWN SW
③ screws
② screw
① sw plate
C-OFF SW

Fig. 3-36. Replacement of Rec. Proof switch

Adjustment Procedure

(i) Adjustment of C-OFF switch (See Fig. 3-37)
At the point where the cassette lift is completely returned, tighten screw ① so that the switch goes ON and the space Ⓐ between the switch section guard and the pin is 0 – 0.2 mm.
(tightening torque; 3 – 4 kg•cm)

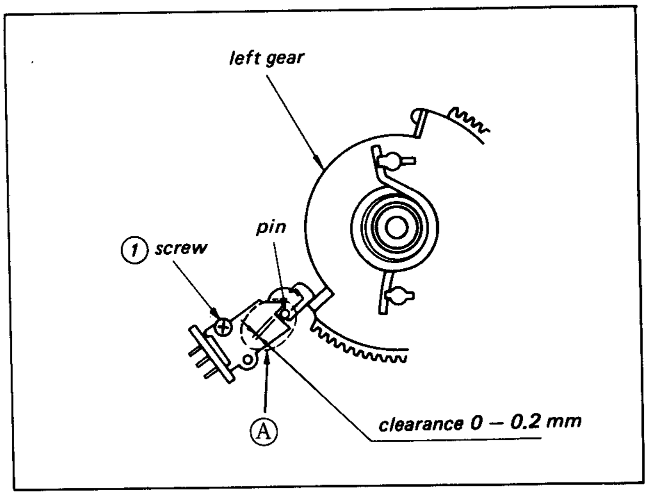

left gear
pin
① screw
Ⓐ
clearance 0 – 0.2 mm

Fig. 3-37. C-OFF switch adjustment

(ii) Adjustment of C-DOWN switch (See Fig. 3-38)

1. Turn the worm gear by hand and move the roller to the end of the guide.
2. Turn the worm gear further until the space between the roller and the end of the guide is 4–5 mm when the cassette lift is pushed all the way up by hand.
3. At this time, adjust so that the switch goes ON at the R section of the left gear.
(tightening torque; 3 – 4 kg·cm)

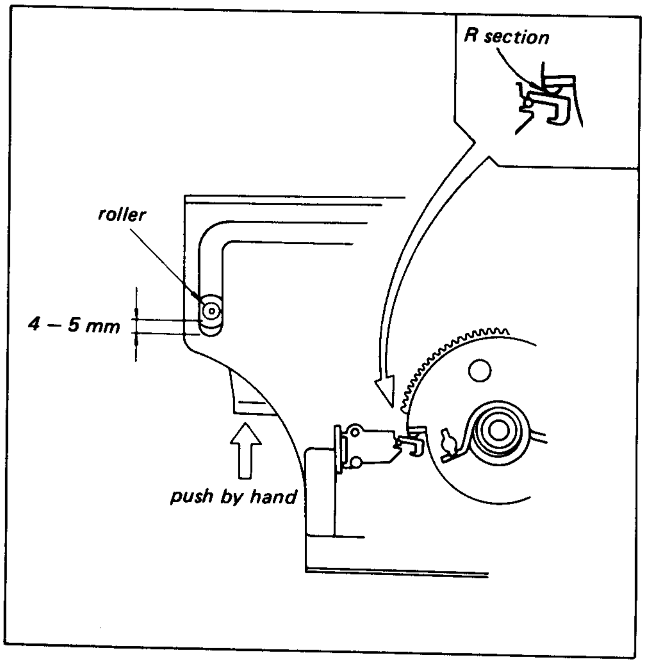

R section
roller
4 – 5 mm
push by hand

Fig. 3-38. C-DOWN switch adjustment

3-14-3. Replacement of Microswitch (See Fig 3-39)

1) Turn the worm gear by hand and lower the cassette lift to the bottom.
2) Remove microswitch screws①.
3) Unsolder the switch and replace it.
4) Match the nut plate between the cassette lift and hinge bracket cover to the hole for the cassette lift microswitch.
5) Put on the microswitch cover and tentatively position the microswitch.

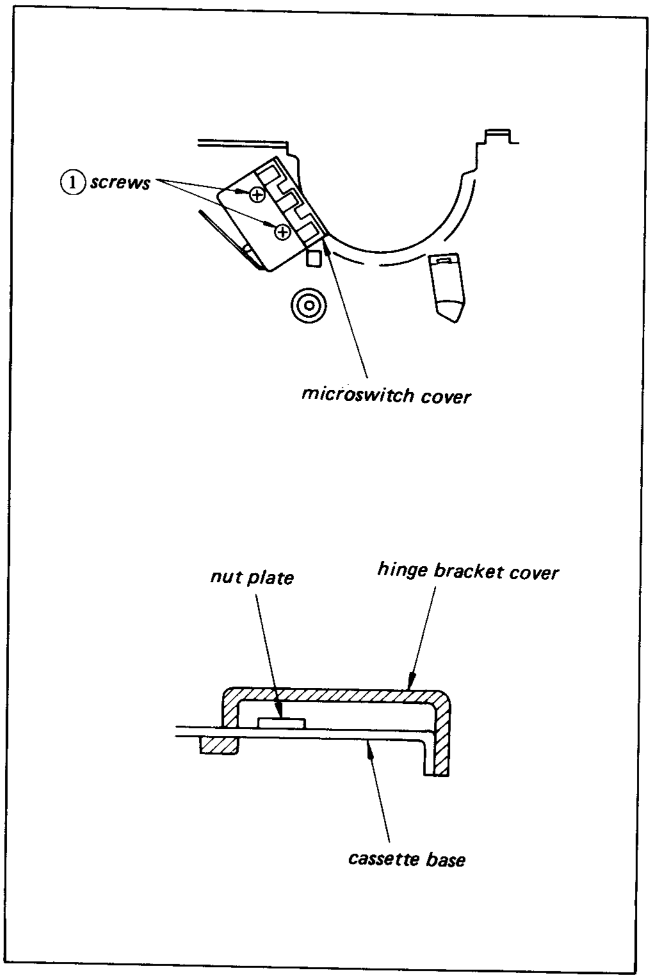

① screws
microswitch cover
nut plate
hinge bracket cover
cassette base

Fig. 3-39. Replacement of microswitch (1)

Switch Adjustment (See Fig. 3-40)

Release the safety arm stopper by hand, and push lock plate ① by hand to lock it. At this time, adjust so that the switch goes ON and the space between the actuator and the outside of the switch is 0.8–1 mm, and tighten.
(tightening torque; 3 – 4 kg•cm)

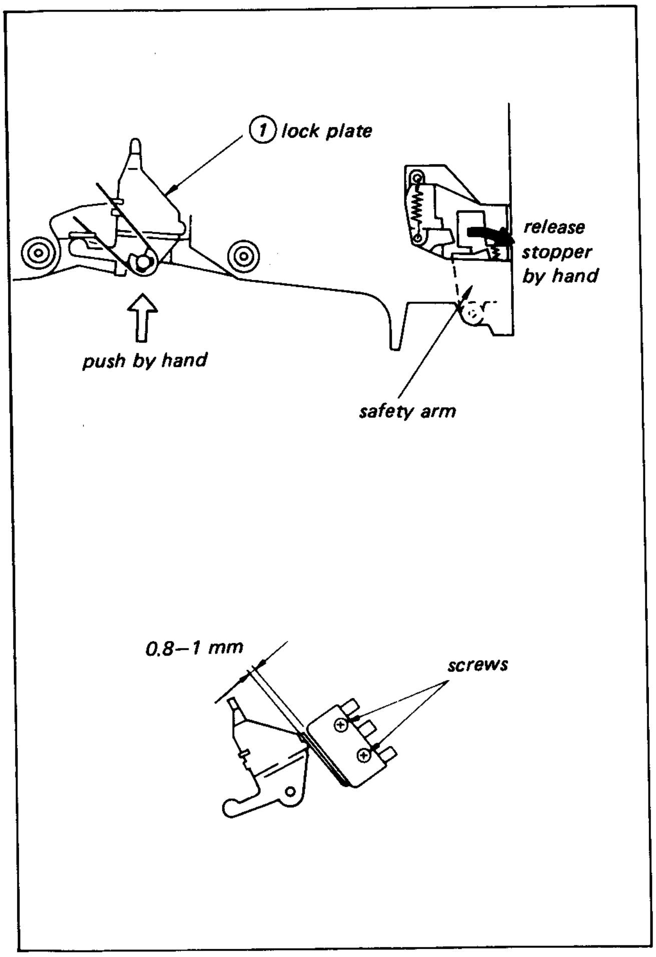

① lock plate
release
stopper
by hand
push by hand
safety arm
0.8–1 mm
screws

Fig. 3-40. Replacement of microswitch (2)

3-14-4. Replacement of Front Loading Motor (See Fig. 3-41) (See item 3-5 for removal of front loading assembly)

1) Unsolder the motor and remove the board.

2) Remove the two screws ② from the motor holder ① and remove the motor assembly.

3) Install so that the worm gear ③ and motor pulley ④ are engaged, and so that the lettering on top of the motor is on the inside. At this time also tighten the lead holder ⑤ so that it cannot be seen outside the motor when viewed from the front.

4) Solder the PC board.

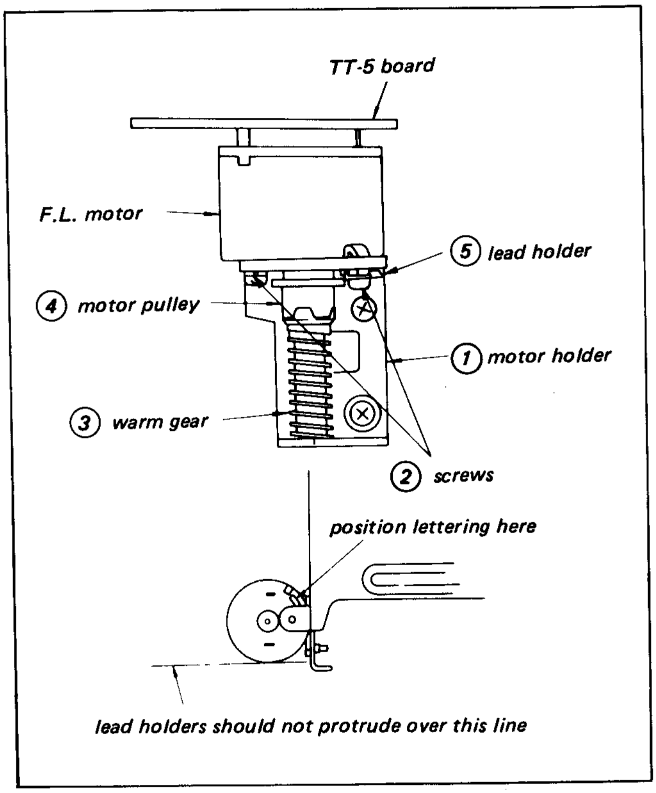
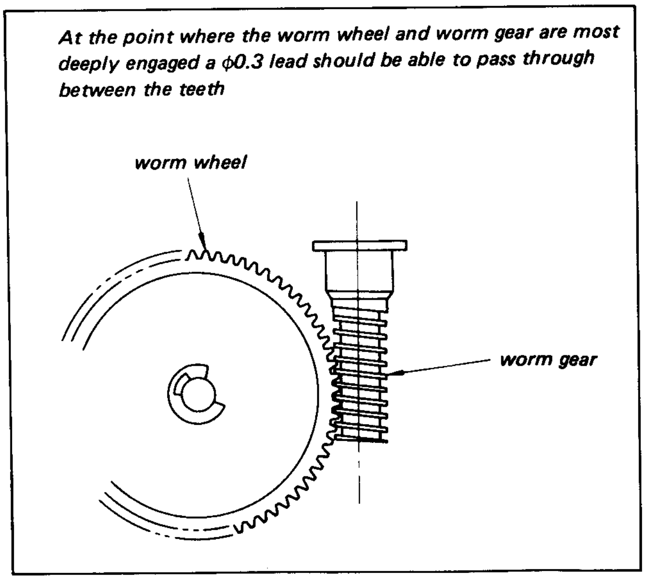

TT-5 board
F.L. motor
⑤ lead holder
④ motor pulley
① motor holder
③ warm gear
② screws
position lettering here
lead holders should not protrude over this line

Fig. 3-41. Replacement of F.L. motor (1)

5) Check that the worm gear and worm wheel are engaged. (See Fig. 3-42)


At the point where the worm wheel and worm gear are most deeply engaged a ϕ0.3 lead should be able to pass through between the teeth

worm wheel
worm gear

Fig. 3-42. Replacement of F.L. motor (2)

When replacing the left or right drive gears, worm wheel or right wheel, when all parts are in place, turn the worm gear and move the cassette lift forward. (See Fig. 3-43) At this time, view the cassette lift through the hole in the cover and confirm that the left side moves forward a little faster than or at the same time as the right side. However, the right side should not be more than 2 mm slower.

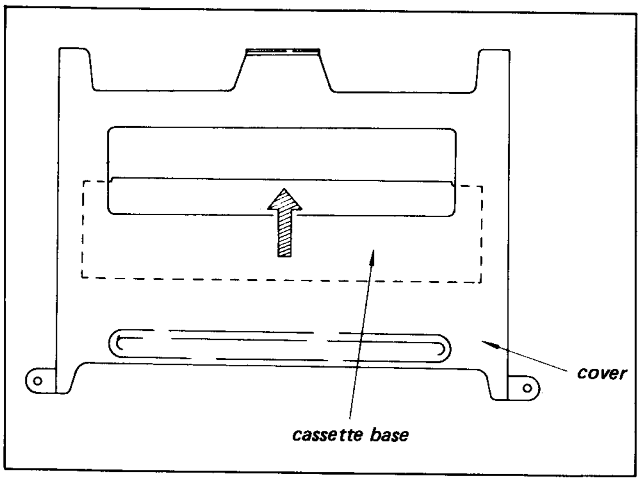


Fig. 3-43. Replacement of F.L. motor (3)

3-15. TAKE-UP TORQUE CHECK

Since sufficient take-up torque cannot be obtained at the last section of the tape if the take-up torque is below the specified value, tape slackness is caused at the capstan shaft point and sometimes the slack sensor operates.

1) Rewind the tape a little and set up the PLAY mode (for playback of the very last section of the tape) after the auto-stop at the tape end in the FAST FWD mode. Confirm that the tape runs without any slackness at the capstan shaft area. If the tape slackens, perform the following adjustments.

2) Clean the tape-up reel table assembly, the FWD limiter assembly, and the FWD belt with a piece of cloth dampened with methanol.

3) Stop the operation of the slack sensor. (Refer to section 1-4.)

4) Attach the reel table tension gauge (Ref. No. J-4) on the take-up reel table as shown in Fig. 3-44.

5) Pull out the string from the reel table tension gauge about 30 cm (12 inches) and hook the sector type tension gauge (50g full scale, Ref. No. Jig 6) on the end of the string.

6) Set up the PLAY Mode.

7) Bring the sector type gauge toward the take-up reel table at a speed of approximately 2 cm/sec. as show in Fig. 3-44. Confirm that the gauge reading is within the specification. If not, replace the FWD limiter assembly (A-6740-072-0) and make the check again.

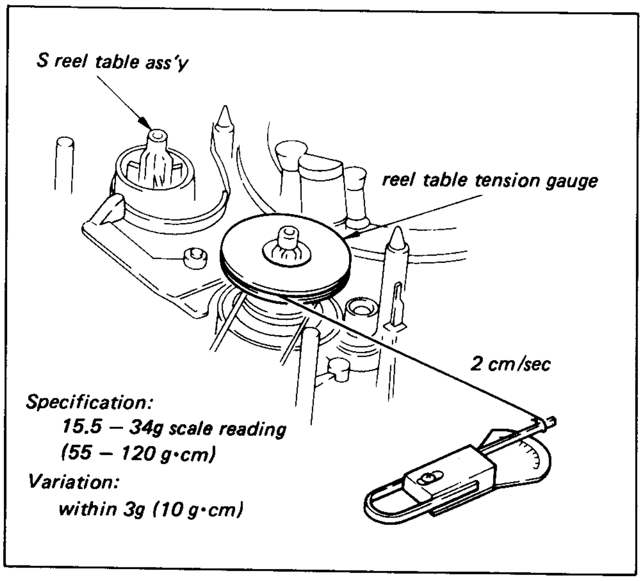


Fig. 3-44. Take-up torque check

3-16. BRAKE TORQUE CHECK

This machine has a supply brake, take-up brake, and soft brake. These brakes operate as follows.

Reel table assembly **Mode**	**Supply Side**	**Take-up Side**
Cassette EJECT mode	Supply & soft brakes are ON.	Take-up brake is ON.
Threading mode	Only soft brake is ON. (The supply reel rotates a little, supplying tape.) Soft brake torque: 8 – 12 g•cm. Reel table rotates clockwise.	Free (tape supplied from take-up side)
STOP mode REW idler is pressed and must be released when measuring	Supply and soft brakes are ON. Reel table rotates clockwise: 100 – 500 g•cm. Reel table rotates counterclockwise: 40 – 130 g•cm.	Take-up brake is ON. Reel table rotates clockwise: 20 – 100 g•cm. Reel table rotates counterclockwise: 60 – 500 g•cm.
FF mode	Only soft brake is ON.	Free (Tape is taken up to take-up side.)
REW mode	Only soft brake is ON.	Free (Tape is taken up to supply side.)
PLAY mode	Only FWD back tension brake band is ON.	Free (Tape is taken up to take-up side.)
REC PAUSE mode	Supply brake, soft brake and FWD back tension brake band are ON.	Take-up brake is ON.
Unthreading mode	Only soft brake is ON. (Supply reel rotates a little, supplying tape.)	Free (Tape is taken up to take-up side.)

3-16-1. Check of Supply and Take-up Brake Operations

- When the tape slackens when the mode is changed from STOP to FF and to STOP from REW, perform check and adjustment, following the steps below.
- Since the slackness tends to occur when the wound diameter of the tape on the reel table is small, the check must be made in this state.

1) Insert a cassette and set up the initial state of taking-up of the tape. (Rewind the tape and cue its beginning.)
2) Repeat the operation, changing the mode from FF to STOP two or three times and confirm that there is no tape slackness. If the tape slackens, perform steps 5 and 6 for adjustment.
3) Set up the condition where the tape is about to be completely wound on the take-up reel. (Fast forward the tape and stop the tape movement at the end section.)
4) Repeat the operation, changing the mode from REW to STOP two or three times and confirm that there is no tape slackness. If the tape slackens, perform steps 5 and 6 for adjustment.
5) Remove the reel table assembly and clean the surface of the assembly and the brake linings with a piece of cloth dampened with methanol.
6) As shown in Fig. 3-45, slightly change the position of the supply and take-up brake linings and install. If the tape still slackens, replace the supply brake (A-6741-039-0) and the take-up brake (A-6741-040-0), and perform the check again.

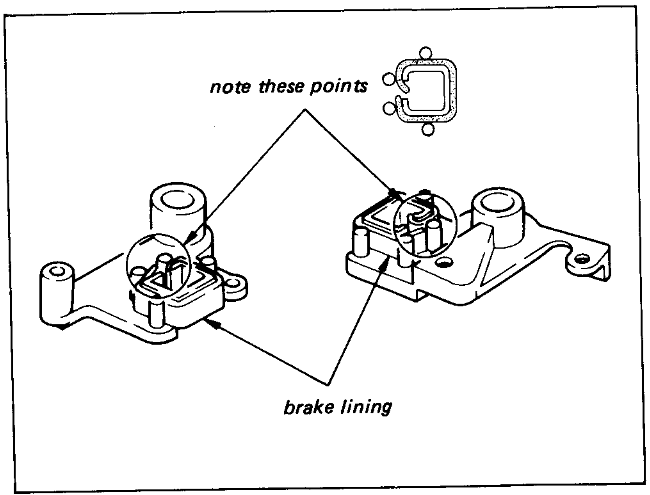


Fig. 3-45. Check of supply and take-up brake operations

3-16-2. Check of Supply and Take-up Brake Torque

1) Set up the unthreading completion state without a cassette.

2) Attach the reel table tension gauge (Ref. No. J-4) to the take-up reel table as shown in Fig. 3-46 and hook the sector type gauge (100g full scale, Ref. No. J-7) to the end of the string. Pull the sector type gauge at a speed of approximately 2 cm/sec and read the gauge value.

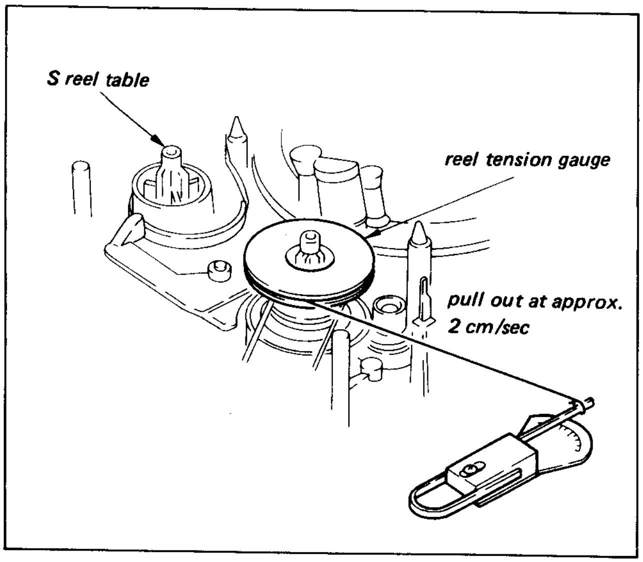


Fig. 3-46. Check of supply and take-up brake torque (1)

3) Set the reel table tension gauge as shown in Fig. 3-47.

4) Push the REW aram ① in the directon of the arrow by hand, and separate the REW idler assembly ② from the supply reel table.

5) Hook the sector type gauge onto the end of the reel table tension gauge string and pull it at a speed of approximately 2 cm/sec and confirm that the reading is within the specifications.

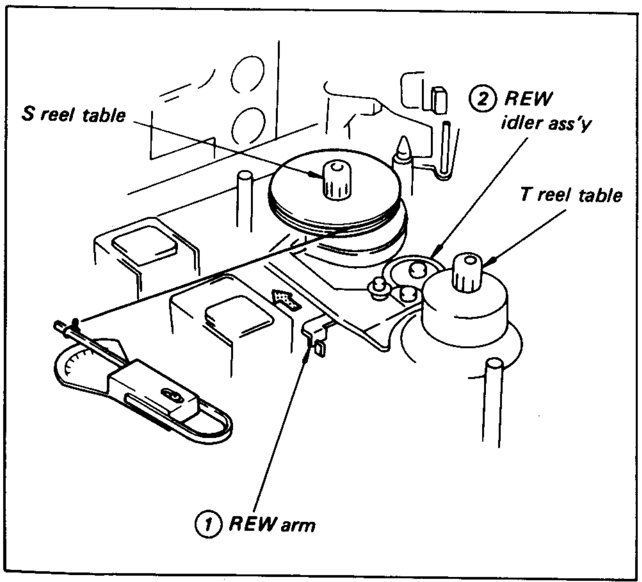


Fig. 3-47. Check of supply and take-up brake torque (2)

Specifications:

- When supply reel table assembly rotates clockwise (↻): 100 – 500 g·cm(scale value is 29 – 143g.)
- When supply reel table assembly rotates counterclockwise (↺): 40 – 130 g·cm(scale value is 11 – 37g.)
- When take-up reel table assembly rotates clockwise (↻): 20 – 60 g·cm(scale value is 6 – 17g.)
- When take-up reel table assembly rotates counterclockwise (↺): 60 – 500 g·cm (scale value is 17 – 143g.)

3-16-3. Check and Adjustment of Soft Brake Torque

1) Set up STOP mode without a cassette.

2) Mount the reel table tension gauge (Jig Ref. No. J-4) as shown in Fig. 3-47, and hook the sector type gauge (50g full scale, Ref. No. J-6) to the end of the string.

3) Put the set into FF mode.

4) Pull the sector type gauge at a speed of approximately 2 cm/sec and confirm that the value is within the specifications (scale reading: 2.5–4.5g – 8–12 g.cm)

5) If the specifications are not met, change the position of the spring on the soft brake arm to adjust, and perform steps 2, 3, and 4 again. (See Fig. 3-48) (One change of the spring's position will change the cause a change of about 2 g.cm.)

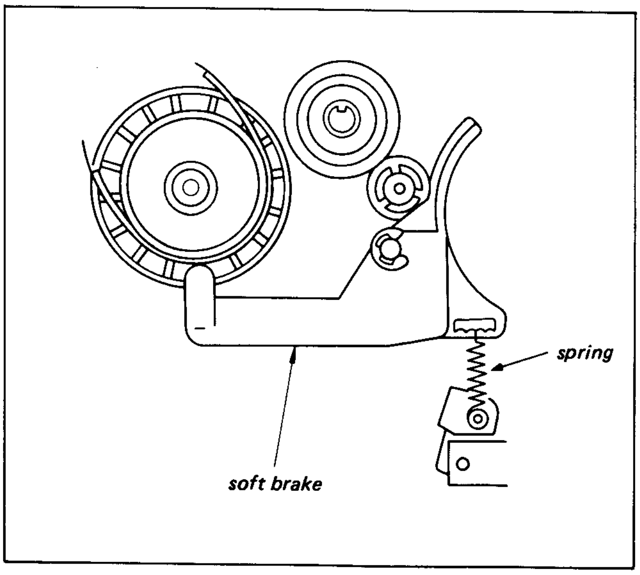


Fig. 3-48. Check and adjustment of soft brake torque

3-17. FWD BACK TENSION ADJUSTMENT

- The ideal measurement of FWD back tension is to measure it under the same conditions as during the actual tape running state. The simple measurement procedure of FWD back tension is described here. Measurement error due to difference in measurement procedure is corrected in the specification.

1) Set up the STOP mode without cassette. (Refer to section 1-3.)

2) Place the FWD back tension jig (Ref. No. J-5) on the supply reel table assembly and thread the tape as shown in Fig. 3-49. Hook the sector type gauge (100g full scale, Ref. No. J-7) to the end of the tape.

3) Put the set into PLAY mode.

4) Pull the sector type gauge at a speed of approximately 2 cm/sec. and confirm that the gauge reading is within the specification. If not, perform steps 5 and 6.

5) As shown in Fig. 3-50, move the position of the spring on the tension regulator arm to the position shown in the enlarged illustration to adjust.

6) Perform steps 2, 3 and 4 to check again.

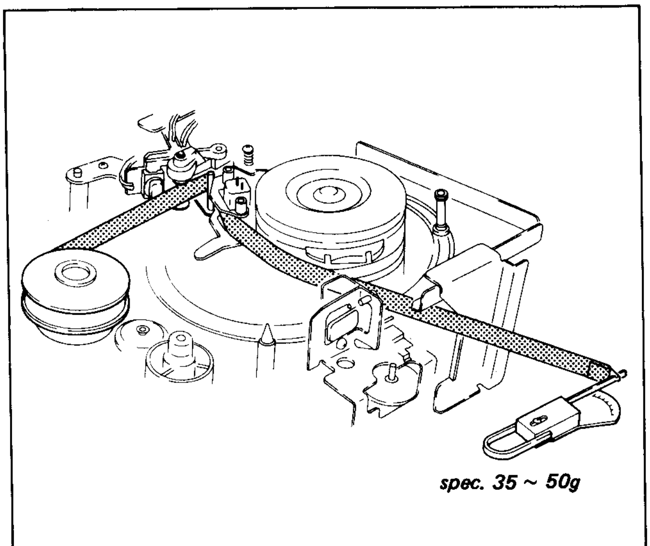


Fig. 3-49. FWD back tension adjustment (1)

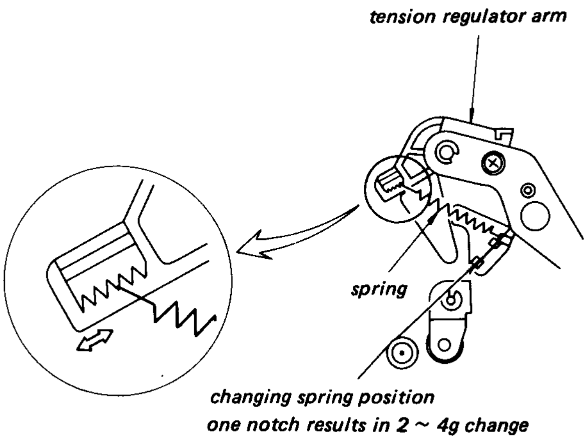


Fig. 3-50. FWD back tension adjustment (2)

3-18. TRACKING ADJUSTMENT

3-18-1. Adjustment of Tape Path

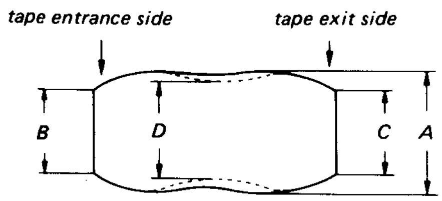
- Perform this adjustment carefully because poor adjustment reduces tape interchangeability and picture quality.

1) Clean the tape movement faces (the tape guide, drum, capstan and pinch roller) with chamois dampened with methanol or isopropyl alcohol.

2) Connect the oscilloscope to TP-5 on the RF-4 board and the external trigger to TP-3.

3) Play back the TRACKING segment of the alignment tape (KR5-1H or 2H).

4) Confirm that the RF output waveform envelope on the oscilloscope screen increases and decreases, while remaining flat, when the TRACKING control knob is turned to the left and the right from its center detent position. If the RF waveform does not increase and decrease while remaining flat, perform Step 6 for the adjustment.


tape entrance side
tape exit side
B
D
C
A

Specification:
TRACKING control knob at optimum position.
tape-to-head

contact: $\frac{B}{A} \geqq 0.7$

$\frac{C}{A} \geqq 0.7$

variation: $\frac{D}{A} \geqq 0.9$

Fig. 3-51. Adjustment of tape path

5) Confirm that the fluctuation and the tape-to-head contact satisfy the specification shown in Fig. 3-51. If they do not, perform Step 6 for the adjustment.

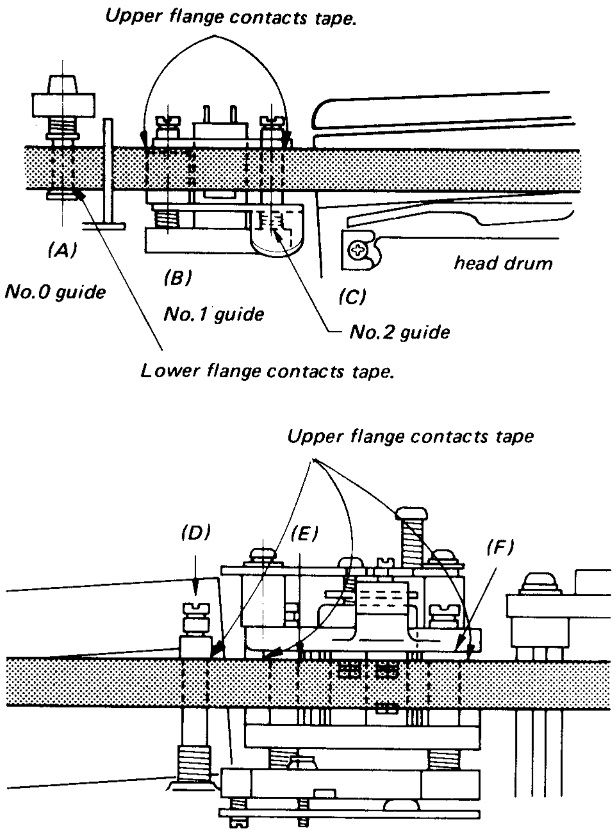

Upper flange contacts tape.
(A)
No.0 guide
(B)
No.1 guide
(C)
No.2 guide
head drum
Lower flange contacts tape.
Upper flange contacts tape
(D)
(E)
(F)

Fig. 3-53. Adjustment of tape path

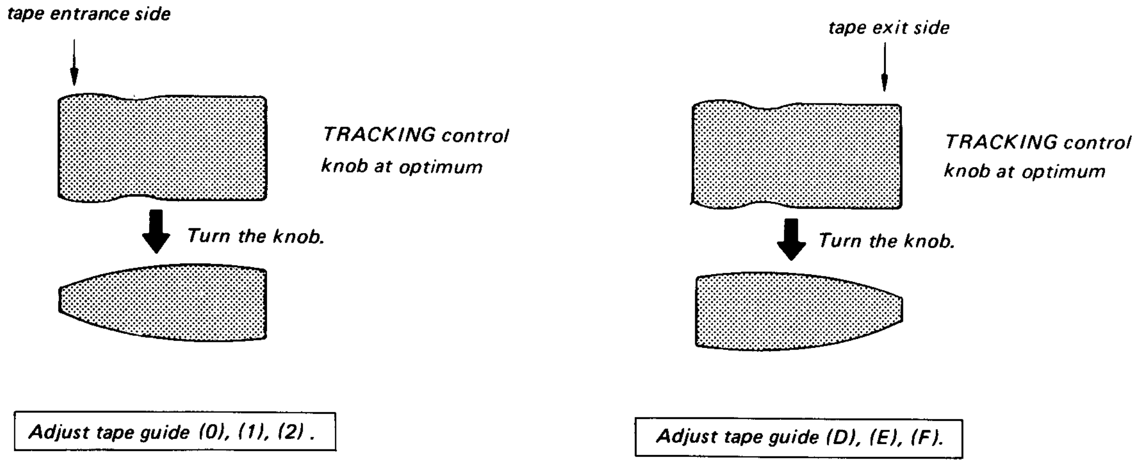

tape entrance side
TRACKING control knob at optimum
Turn the knob.
Adjust tape guide (0), (1), (2).
tape exit side
TRACKING control knob at optimum
Turn the knob.
Adjust tape guide (D), (E), (F).

Fig. 3-52. Adjustment of tape path

6) When the waveform at the tape entrance side is not flat as shown in Fig. 3-52 for the clockwise and counterclockwise turning of the **TRACKING** control knob from center detent position, adjust the heights of tape guides (0), (1), and (2). When the waveform at the tape exit side is not flat, adjust the heights of tape guides (D), (E), and (F). The height adjustment must be performed so that the tape contacts the drum heads, and there is a minimum curl (not more than 2 mm) at the flange of each tape guide, the upper or lower flanges contact the tape as shown in Fig. 3-53 and the RF waveform is flat.

Note: The construction of the ACE assembly enables the assembly to be adjusted so that its top plate is perpendicular to the face of the moving tape as a whole, but this "Zenith" adjustment is not necessary except after ACE assembly replacement.
Since tape guide (D) regulates the movement of the tape around the drum exit, raise tape guide (D) about 0.5 mm before the adjustment of the tape path on the exit side. Then lower tape guide (D) to the point immediately before the RF waveform varies, and with less than 2 mm curl after the tape path adjustment.

3-18-2. Adjustment of Exit Side Tracking after ACE Assembly Replacement

1) The ACE assembly can be removed if the three screws shown in Fig. 3-54 are removed.

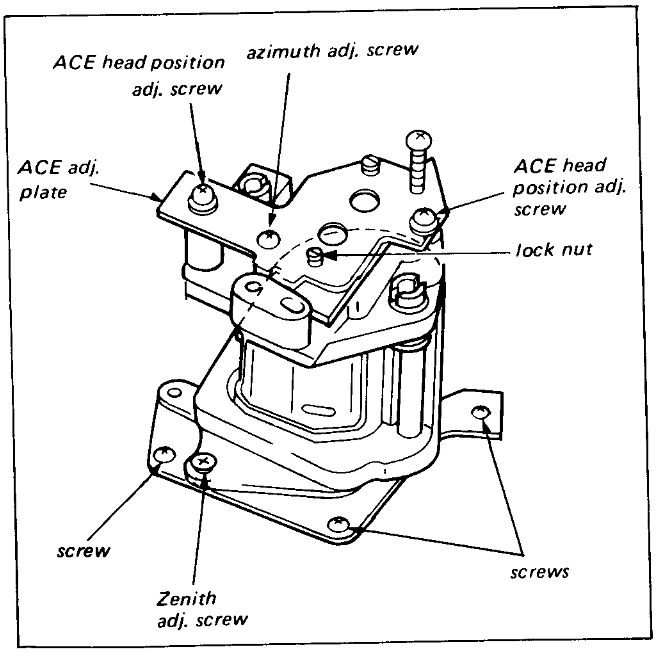


Fig. 3-54. Removal of ACE assembly

2) Perform the adjustment following Step 3 after the completion of the replacement.

3) Raise the tape guide (D) shown in Fig. 3-53 by 0.5 mm. (Turn the nut one turn.)

4) Play back the **TRACKING** segment of the alignment tape (KR5-1H or 2H). Confirm that the RF wave output (see Fig. 3-51) satisfies the specification and there is a minimum curl (not more than 2 mm) on the tape edge contacting the tape guide. Confirm that the RF waveform varied from the flat state when the tape guides (E) and (F) are raised and adjust the heights of the tape guides so that the waveform output becomes flat. (See Fig. 3-55)

5) When the waveform does not vary if the tape guides (E) and (F) are raised in Step 4 or when the waveform does not become flat if the tape guides are lowered, perform the adjustment, following the procedure below.

(i) Loosen the lock nut shown in Fig. 3-54.

(ii) Turn the zenith adjusting screw counterclockwise (↺) a little more than 30 degrees and turn it clockwise (↻) until the screw returns to the point 30 degrees counterclockwise from its original point.

(iii) Perform Step 4 again. If the specification is not satisfied, perform Step 5 again. Since the ACE assembly was adjusted perpendicularly when assembled at the factory, do not turn the zenith adjusting screw more than 60 degrees to the right and left from the original position.

(iv) After the adjustment, tighten the lock nut until a slight resistance is felt and confirm that the specification in Step 4 is satisfied.

6) When there is an edge curl at the tape contacting the tape guide in Step 4, perform the adjustment, following the procedure below.

(i) Loosen the lock nut shown in Fig. 3-54.

(ii) Tighten the zenith adjusting screw clockwise only 15 degrees.

(iii) Perform Step 4 again. If the specification is not satisfied, perform Steps 5 and 6 again, but do not turn the zenith adjusting screw to the right and left more than 60 degrees from its original position.

(iv) Tighten the lock nut until a slight resistance is felt after the adjustment. Confirm that the specification in Step 4 is satisfied.

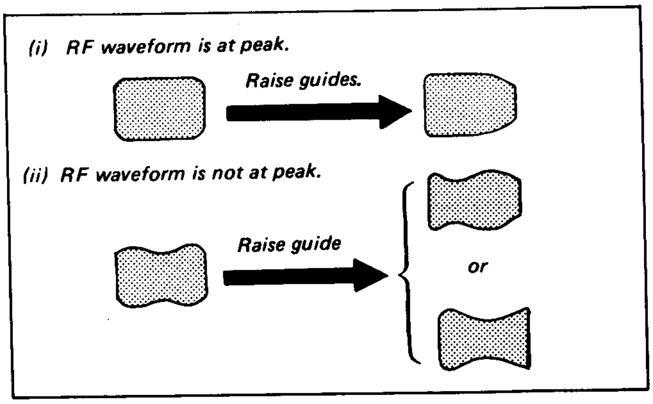


Fig. 3-55. Adjustment of exit side tracking after ACE assembly replacement

3-18-3. Audio Head Azimuth Adjustment

[Connection of Equipment]

The connections of the equipment to the input/output terminals are shown in Fig. 3-56.

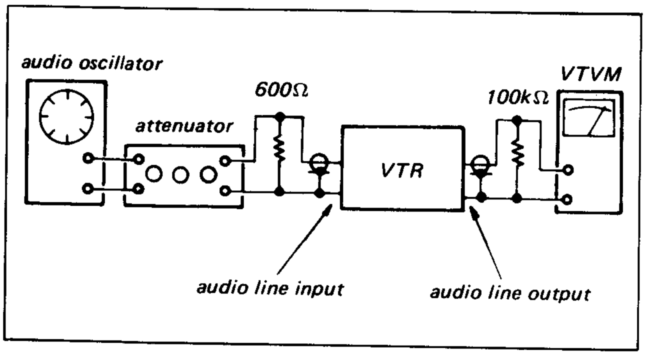

audio oscillator
600Ω
attenuator
VTVM
100kΩ
VTR
audio line input
audio line output

Fig. 3-56. Connections

1) Terminate the audio line output terminal with a 100 kΩ resistor and connect a VTVM.

2) Play back the 5 kHz signal segment of the alignment tape.

3) Adjust the azimuth adjustment screw on the audio head for a maximum VTVM reading. (See Fig. 3-56).

Note: Loosen azimuth adjustment screw before the adjustment and tighten it after the completion.

3-18-4. Position Adjustment of ACE Assembly

- This adjustment includes the mechanical head mounting position adjustment and the electrical tracking control center adjustment.
- The adjustment sequence is to perform the tracking control center adjustment and then the mechanical adjustment of the head mounting position. If this sequence is reversed, poor tracking occurs.

1) Connect a dual-trace oscilloscope as follows.

CH-1	TP-5	(RF-4 board)
CH-2	TP-506	(AD-7 board)
Ext trigger	TP-3	(RF-4 board)

2) Play back the TRACKING segment of alignment tape KR5-1H or 2H (See Fig. 3-57).

3) Set the tracking control to the center detent position and confirm that the output waveform level is maximum and the 0 level point of the audio signal appears at the Bch waveform point as shown in Fig. 3-57. If the specification is not satisfied, perform the following Step 4.

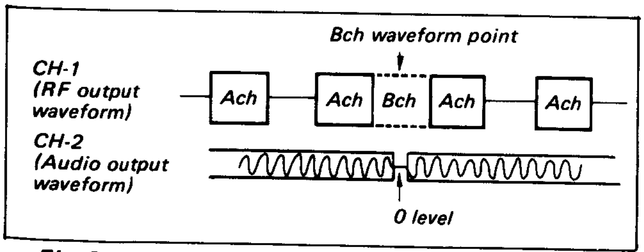

Bch waveform point
CH-1 (RF output waveform)
Ach
Ach
Bch
Ach
Ach
CH-2 (Audio output waveform)
0 level

Fig. 3-57. Position adjustment of ACE assembly (1)

4) Perform the tracking control center adjustment. [Refer to section 4-3-2(2)].

5) Set the TRACKING control knob to its center detent point and play back the TRACKING segment of the alignment tape (KR5-1H or 2H).

6) Loosen the two position adjusting screws of the ACE head and adjust the cut-out section of section A for maximum RF output waveform and a 0 level of audio signal at the Bch waveform point. (See Fig. 3-57.)

Note: Perform the adjustment so that the center of the cut-out section of the A section will almost match the center of the round hole.

7) Play back the TRACKING segment of the alignment tape and confirm the proper picture appearance.

8) Tighten the position adjusting screw of the ACE head.

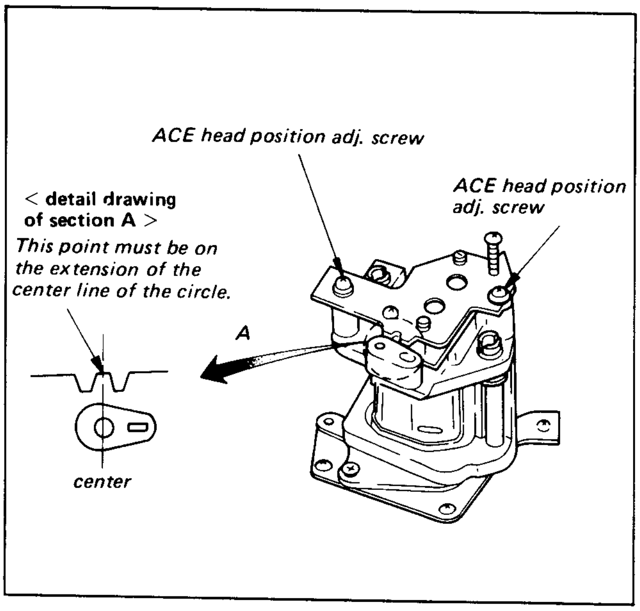

ACE head position adj. screw
< detail drawing of section A >
This point must be on the extension of the center line of the circle.
ACE head position adj. screw
A
center

Fig. 3-58. Position adjustment of ACE assembly (2)

3-18-5. Video Head Dihedral Adjustment

- Generally this adjustment is not necessary except after video head disc replacement.

Note: The dihedron of a video head disc for replacement purposes was adjusted precisely with a microscope at the factory and the readjustment is usually not necessary.

- The ACE assembly position adjustment has been completed prior to this dihedral adjustment.
- The judgment of the video head dihedron must be performed in the condition that the monoscope signal segment of the alignment tape (KR5-1H or 2H) is played back and the TRACKING control knob is set to the center detent position. (See Fig. 3-59.)

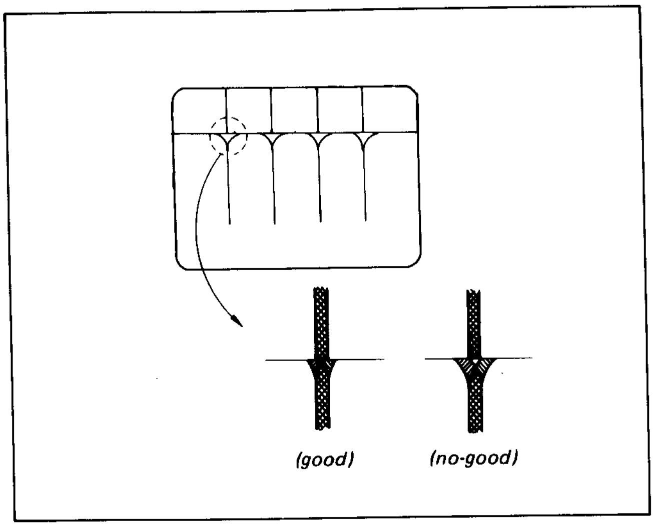

(good)
(no-good)

Fig. 3-59.

- When the dihedron is no-good, the preparation of the video head dihedral adjustment is to install two dihedral adjusting screws in the holes close to the small mark (●) shown in Fig. 3-60 and tighten them until the screw heads are level with the top surface of the video head disc. (If the screws are not tightened until their heads become level with the surface, the upper drum of the video head disc is caught by the adjusting screw heads and the video head disc cannot rotate. If the screws are tightened excessively, the head base is moved and the dihedral distortion becomes larger.)

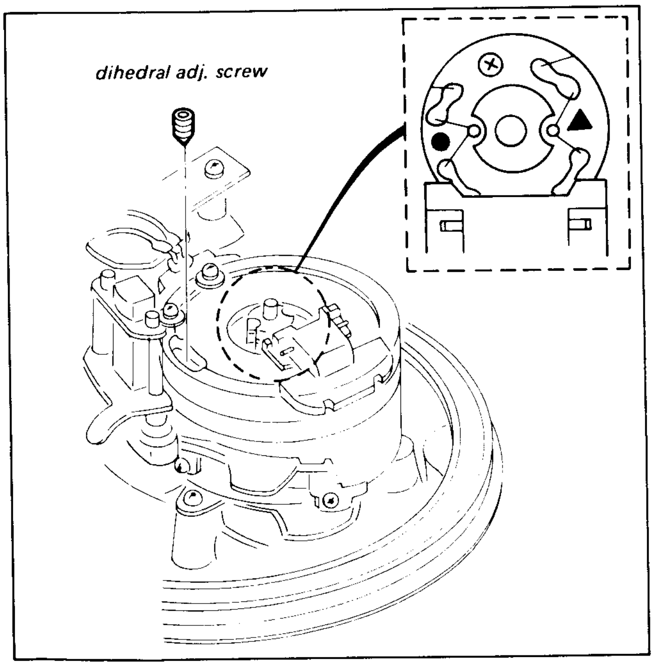

dihedral adj. screw

Fig. 3-60.

When the dihedron is no-good;

1) When the split becomes small for the clockwise turn of the TRACKING control knob, the B head shifts by C in the arrow direction as shown in Fig. 3-61 and traces the magnetic pattern on the tape. The adjusting screw in adjustment hole E shown in the figure must be tightened further to shift the B head in the left direction until the good dihedron shown in Fig. 3-59 is obtained.
Set the TRACKING control knob to the center detent point.

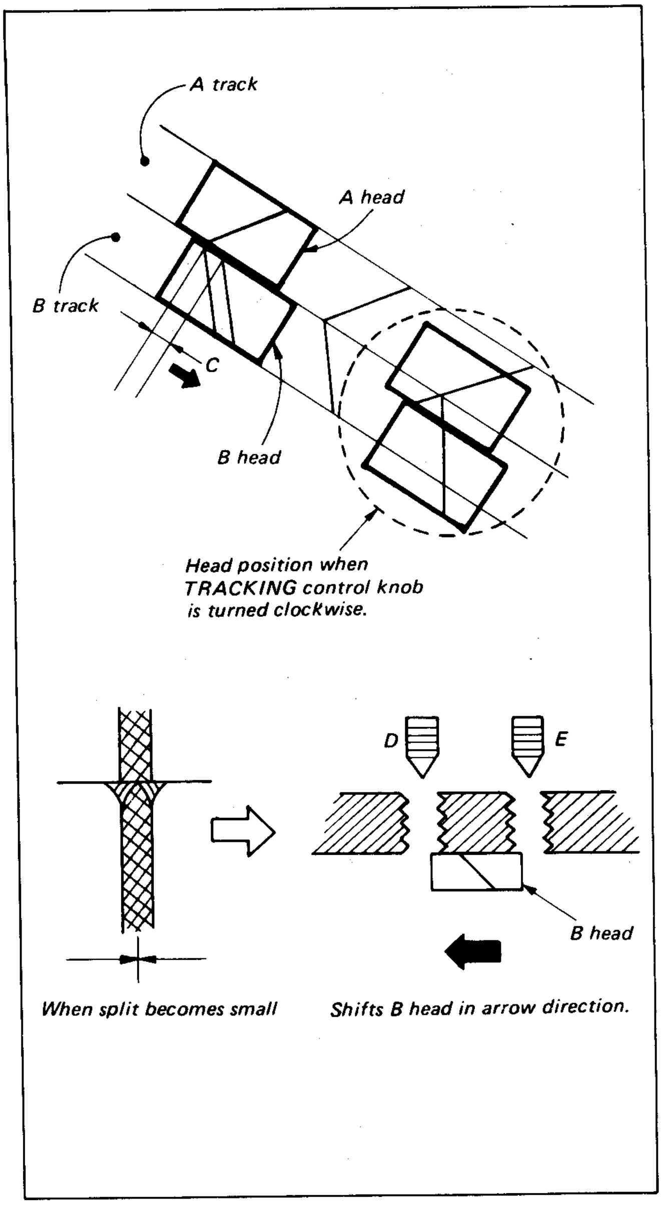
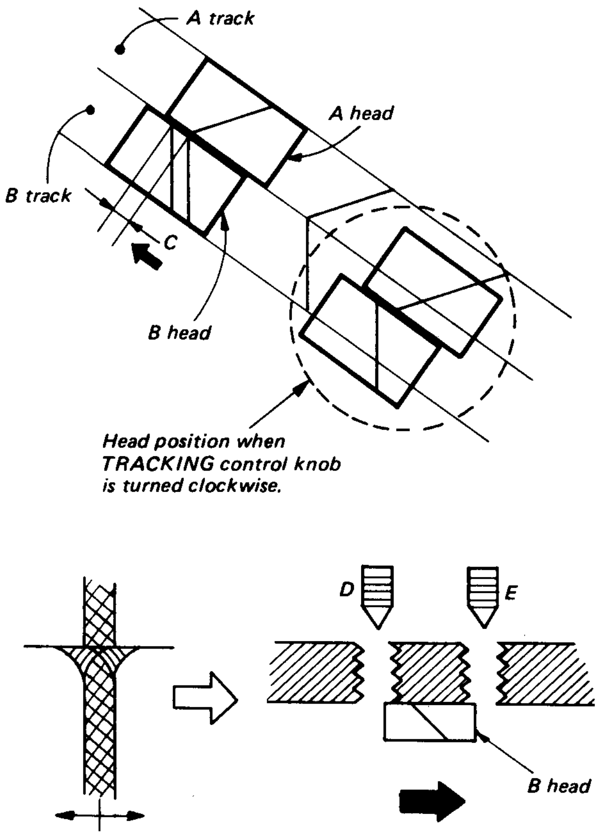

A track
A head
B track
C
B head
Head position when TRACKING control knob is turned clockwise.
D
E
B head
When split becomes small
Shifts B head in arrow direction.

Fig. 3-61.

2) When the split becomes large for the clockwise turn of the TRACKING control knob, the B head shifts by C in the attow direction as shown in Fig. 3-62 and traces the magnetic pattern. The adjusting screw in adjustment hole D shown in the figure must be tightened further to shift the B head in the right direction until the good dihedron shown in Fig. 3-59 is obtained.
Set the TRACKING control knob to the center detent point.


A track
A head
B track
C
B head
Head position when TRACKING control knob is turned clockwise.
D
E
B head

When split becomes large *Shift B head in arrow direction.*

Fig. 3-62.

3) Remove the adjusting screws after the completion of the adjustment and check the dihedron again.

SECTION 4
ELECTRICAL ALIGNMENT

All the electrical alignment can be performed by using the equipment mentioned below, the alignment tape, and the PAL colour bar signal (100%).

[Equipment Required]

(1) Colour Monitor TV
(2) Oscilloscope, Dual-trace, Bandwidth. . . more than 10 MHz with delay mode
(3) Frequency Counter
(4) PAL Colour-Bar Generator
(5) Digital voltmeter
(6) VOM (20 KΩ/V)
(7) Audio Signal Generator
(8) Vectorscope
(9) Attenuator
(10) Alignment Tape, type: KR5-2H, Code No. 8-969-995-52
(11) Spectrum analyzer
(12) Television Multiplex Modulator
(13) Alignment Tool (Adjusting screwdriver for semi-fixed resistors and coils)
Jig. No. SL-0001, Code No. J-6080-001-A

[Setup for Alignment]

The antenna should be connected correctly to the antenna input terminal of the videocassette recorder.

It is important that the video output signal satisfies the specification because the telecast signal received by the incorporated tuner of the videocassette recorder is utilized as the adjustment signal of the machine. The incorporated tuner should be set to the channel with the best reception. The video signal should be checked with an oscilloscope connected to VIDEO OUT (BNC connector). Virify that the sync signal amplitude is approx. 0.3 Vp-p aand the video signal amplitude is approx. 0.7 Vp-p at peak. Adjust the fine tuning while observing the signal and the TV screen so that the burst signal amplitude becomes approx. 0.3 V ± 0.1 Vp-p. Also confirm that there is no spikes observed at the sync signal portion. (See Fig. 4-1.)

The video (colour bar) signal for the alignment is shown in Fig. 4-1.

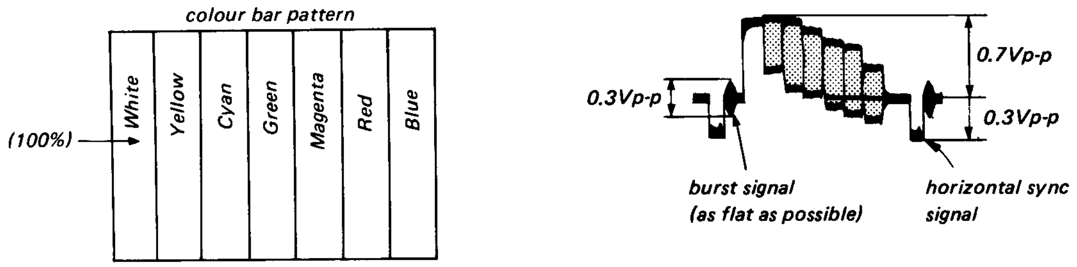


Fig. 4-1. Video (colour bar) signal

[Alignment Tape]

KR5-2H

	Video signal	Audio signal	Playing time	Use for
1.	Colour bars	3 kHz − 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz − 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz − 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-A) *1 (Channel B is inserted in every 3 frames.)	1 kHz − 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustments CTL Position check (Check if *1 and *2 are the same position.)

Note: Use KR5-2H for alignment tape.
KR5-1H, however, is also usable KR5-2H has the improved characteristics.

[Alignment Tool for Semi-fixed Variable Resistors and Coils]

Semi-fixed variable resistors and inductances should be adjusted with the alignment tool exclusively prepared for the adjustment of the components. A common screwdriver is too large for adjusting the components from the conductor side of a printed circuit board.

The metal blade of the alignment tool is used for variable resistors and trimmer capacitors and the plastic tip is used for variable inductances.

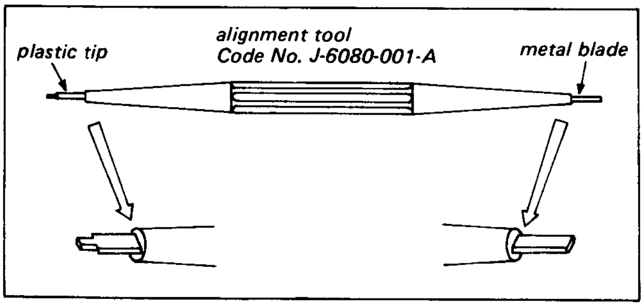

alignment tool
Code No. J-6080-001-A
plastic tip
metal blade

Fig. 4-2. Alignment tool

[Required Levels and Impedances of Input and Output]

VIDEO

Input	VIDEO IN: BNC connector 1.0 Vp-p, 75 ohms unbalanced, sync negative
Output	VIDEO OUT: BNC connector 1.0 Vp-p, 75 ohms unbalanced, sync negative

AUDIO

Input	AUDIO IN: Phono connector, 47 kohms, −10 dB MIC: mini jack, −60 dB, suitable for microphone with 600-ohm impedance
Output	AUDIO OUT: Phono connector, Less than 10 kohms, −5 dB (47 kohm load), unbalanced

[Colour Bar Signal]

The 100% colour bar signal recorded on the Alignment tape is shown in Fig. 4-3.

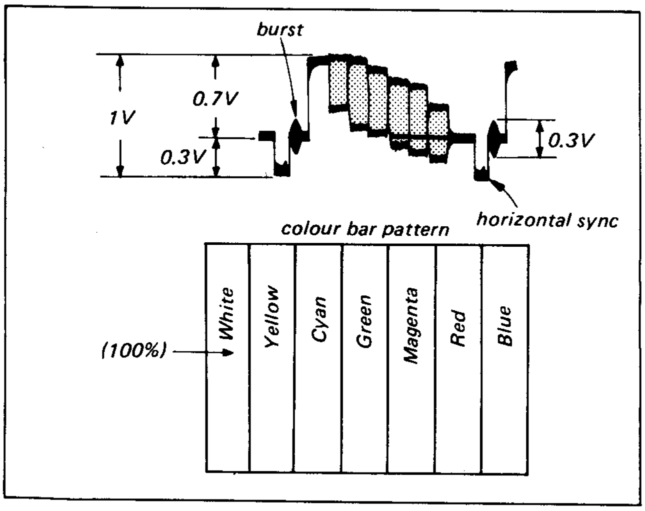

burst
1V
0.7V
0.3V
0.3V
colour bar pattern
horizontal sync
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue

Fig. 4-3. Colour bar signal recorded on the alignment tape

[Adjustment procedure]

Adjust in the order given below.

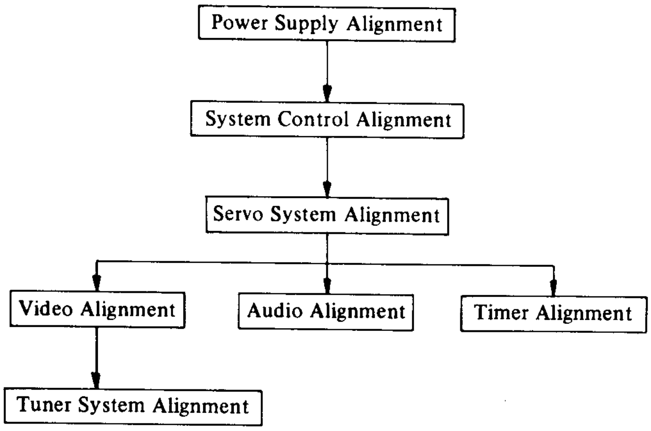

Power Supply Alignment
System Control Alignment
Servo System Alignment
Video Alignment
Audio Alignment
Timer Alignment
Tuner System Alignment

Fig. 4-4.

4-1. POWER SUPPLY CHECK (TP-12, TP-16 boards)

1. **REG 12V Check**
   (1) Check that the input voltage is 220/240V ac ±10%.
   (2) Connect the VOM to 4 pin of IC001/TP16 board.
   (3) Check that the reading is 12V ± 0.1V.

2. **SYS 12V Check**
   (1) Connect the VOM to 7 pin of IC001/TP16 board.
   (2) Check that the reading is 12V ±1V.

3. **EVER 12V Check**
   (1) Connect the VOM to 8 pin of CN001.
   (2) Check that the reading is 12V ± 0.5V.

4-2. CHECK OF THE SYSTEM CONTROL SECTION (SS-9 board)

1. **Clock Frequency Check**
   (1) Connect a frequency counter to IC501 pin 42.
   (2) Check that the frequency counter reads 400 kHz ± 20 kHz.
   Follow the steps below to check the clock frequency with an oscilloscope

   (1) Connect the Oscilloscope to IC501 pin 42.
   (2) Check that the sine wave appearing on the oscilloscope has a period of 2,380 to 2,630 microseconds.

2. **Loading and Threading Check**
   (1) Mount a cassette tape.
   (2) Loading and threading must be performed properly
   Threading time: approx. 5 seconds

3. **Unthreading and Unloading Check**
   When the eject button has been depressed, the recorder should perform unthreading then unloading; eject the cassette; and complete EJECT mode.
   Unthreading and loading time: approx. 5 seconds

4. **PLAY Mode Check**

Depress the PLAY button and check the following.

(1) The PLAY lamp turns on.
(2) The B/S (Brake/Select) and F/E (Forward/Eject) solenoid are energized.
(3) The reel motor starts to run.
(4) The drum motor starts to run.
(5) The pinch roller solenoid is energized.

Note: Pinch roller solenoid delay time = approx. 0.5 second

5. **RECORD Mode Check**

Depress the RECORD button and check the following.

(1) The REC lamp turns on.
(See 4 above for the other items.)

6. **FAST-FORWARD Mode Check**

(1) Depress the FAST-FORWARD button.
(2) Check that the B/S and FF solenoids get energized and the reel and drum motors run.

7. **REWIND Mode Check**

(1) Depress the REWIND button.
(2) Check that the B/S solenoid gets energized and the reel and drum motors run.

8. **PICTURE SEARCH Mode Check**

(1) Put the recorder in PLAY mode.
(2) Keeping the FAST-FORWARD button depressed, check that the pinch roller and F/E solenoids get de-energized and the FF solenoid is energized.
(3) Release the FAST-FORWARD button and, when PLAY mode has been entered, check that the FF solenoid is de-energized and the F/E and pinch roller solenoids energized.
(4) Keeping the REWIND button depressed, check that the pinch roller and F/E solenoids are de-energized.
(5) Release the REWIND button and, when PLAY mode has been entered, check that the F/E and pinch roller solenoids get energized again.
(6) Operating the Remote Commander, repeat steps (1) through (5) above.

9. **Tape Slack Sensor Check**

(1) Run the tape loose intentionally during PLAY or RECORD mode and check that the recorder enters STOP mode automatically.
(2) Repeat step (1) above once more. Check that the recorder enters no mode but EJECT after step (1) has been performed twice.
(3) When the cassette has been ejected, load it back and check that the recorder operates properly in every mode.

10. **PAUSE Mode Check**

(1) When the PAUSE button is depressed, check that the PAUSE lamp is on; the pinch roller and B/S solenoids are de-energized; and the reel disks are stationary.
(2) When the PAUSE button has been depressed next time, check that the pinch roller and B/S solenoids are energized and the reel disks start to run.
(3) Operating the Remote Commander, repeat steps (1) and (2) above.

11. **Auto Stop Check**

(1) Check that the recorder enters STOP mode at the end portion of tape.
(2) When something like a screwdriver is brought close to the FWD sensor head during PLAY, FAST- FORWARD, or RECORD mode or to the REW sensor head during REWIND mode, check that the recorder enters STOP mode with the associated mode button released.

4-3. ADJUSTMENT OF THE SERVO SYSTEM

1. **Drum Free Speed Adjustment (SS-9 board)**

(1) Load a cassette tape and put the recorder in play back mode.
(2) Connect the oscilloscope to TP2. (pin 10 of IC003)
Input: DC range
(3) Adjust the DC level to 5.2V ± 0.3V with RV9 (see Fig. 4-5).

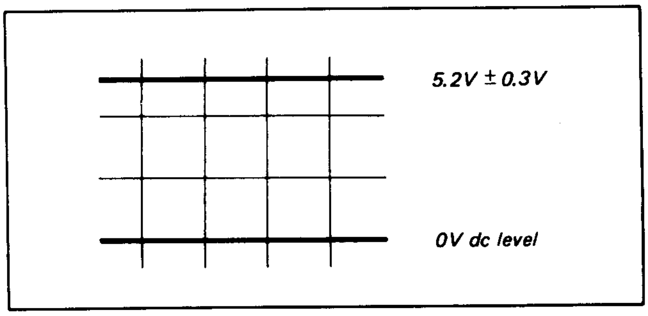


Fig. 4-5. Drum free speed adjustment

2. **Capstan Free Speed Adjustment (SS-9 board)**

(1) Connect an oscilloscope to TP5 (pin 23 of IC001)
(2) Record broadcast signal and adjust DC level to 5.5V ± 0.3V with RV1 (see Fig. 4-6).

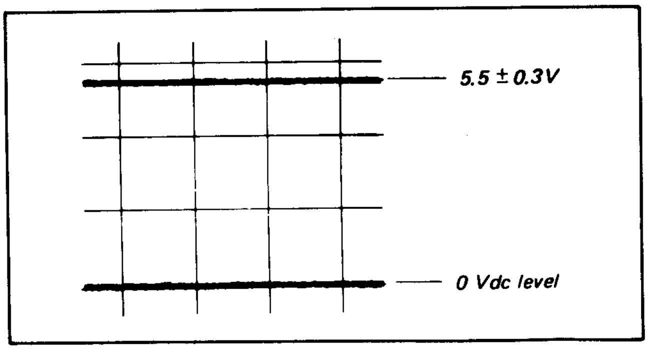


Fig. 4-6. Capstan free speed adjustment

3. Tracking Control Center Adjustment (SS-9 board)

(1) Set the tracking control at the center clickstop.

(2) Playback the alignment tape.

(3) Connect CH-1 of an oscilloscope to TP7 (Pin 17 of IC001) and CH-2 to TP6. (Pin 13 of IC003)

(4) Adjust RV010 so that the negative going of the CH-1 waveform is in phase with that of CH-2 (see Fig. 4-7).

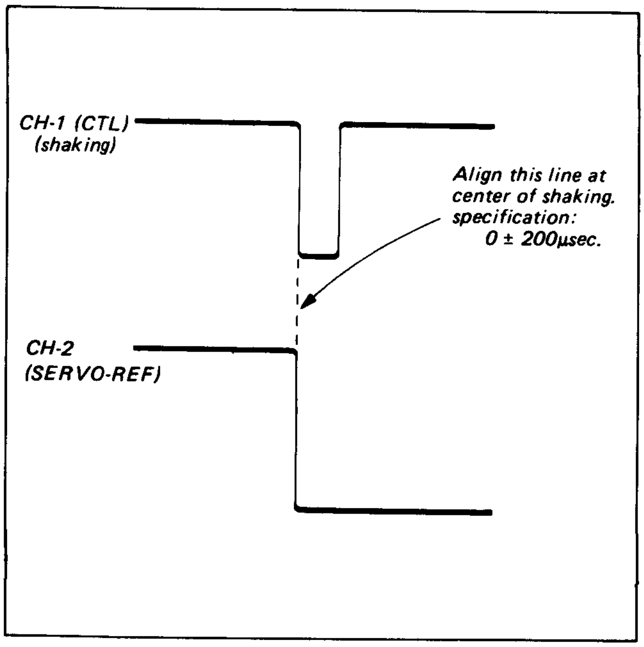

CH-1 (CTL)
(shaking)
Align this line at center of shaking. specification: 0 ± 200µsec.
CH-2
(SERVO-REF)

Fig. 4-7. Tracking control center adjustment

4. RF Switching Position Adjustment (YC-23, RF-4, and SS-9 boards)

(1) Playback the colour bar of the alignment tape.

(2) Connect an oscilloscope to TP5 on the RF-4 board.

(3) Adjust the tracking control so as to maximize the waveform amplitude (see Fig. 4-8).

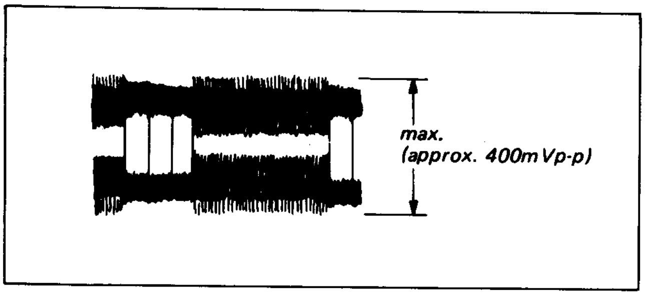

max.
(approx. 400m Vp-p)

Fig. 4-8. RF output waveform

(4) Connect CH-1 of the oscilloscope to TP1 (Pin 4 of IC003) on the SS-9 board and CH-2 to VIDEO OUT jack (CNJ 2) on the YC-23 board.

(5) Adjust RV7 on the SS-9 board so that the time interval between the decay of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ± 1H lines (see Fig. 4-9).

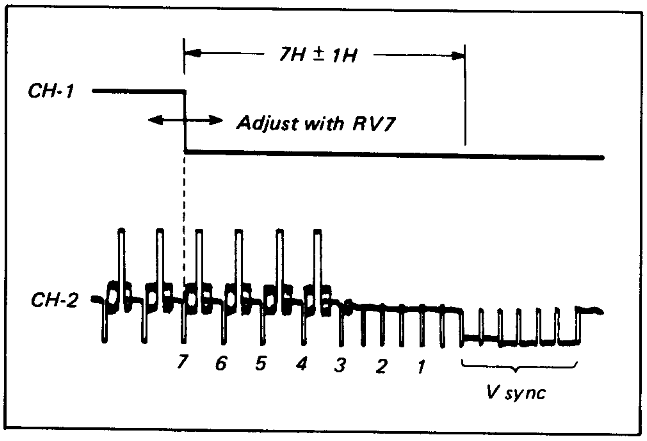

7H ± 1H
CH-1
Adjust with RV7
CH-2
7 6 5 4 3 2 1
V sync

Fig. 4-9. RF switching position adjustment (1)

(6) Adjust RV6 on the SS-9 board so that the time interval between the rise of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ± 1H lines (see Fig. 4-10).

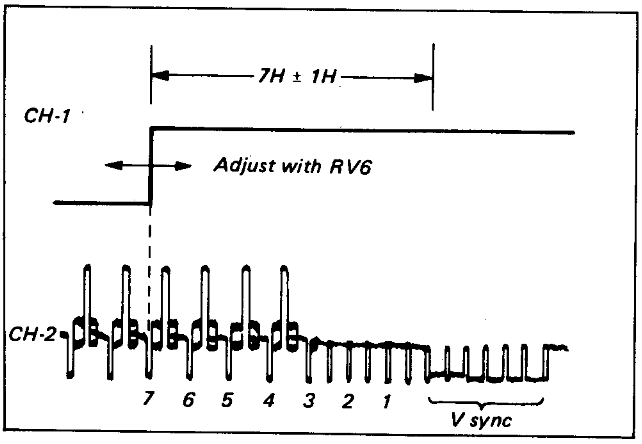

7H ± 1H
CH-1
Adjust with RV6
CH-2
7 6 5 4 3 2 1
V sync

Fig. 4-10. RF switching position adjustment (2)

(7) After adjustment, position the tracking control at the center clickstop.

5. RECORD Mode Servo Lock Phase Adjustment (YC-23 and SS-9 boards)

(1) Supply colour bar signal and record.

(2) Connect CH-1 of an oscilloscope to TP1 (IC003 Pin 4) on the SS-9 board and CH-2 to VIDEO OUT jack (CNJ 2) on the YC-23 board.

(3) Adjust RV8 on the SS-9 board so that the time interval between the decay of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ±2H lines (see Fig. 4-11).

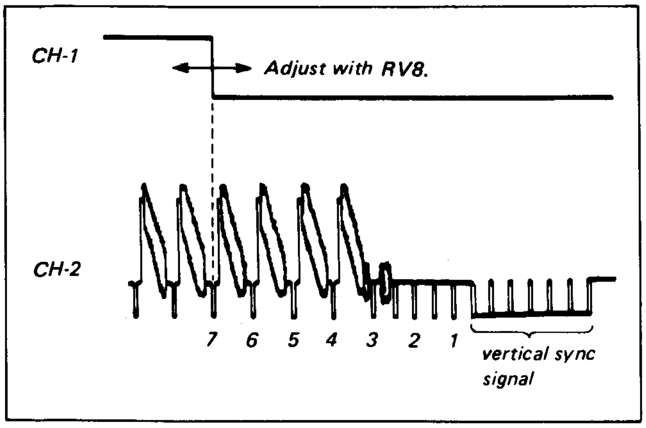

CH-1
Adjust with RV8.
CH-2
7 6 5 4 3 2 1
vertical sync signal

Fig. 4-11. Record-servo lock phase adjustment

6. Adjustment of Drum Speed Compensation During Picture Search (CUE/REVIEW)

(1) Receive broadcast signal.
(2) Record the broadcast signal at the middle of an L-750 cassette tape (where tape length is equal on the T-reel and the S-reel).
(3) Connect an oscilloscope to TP28 on the YC-23 board.
(4) Playback the recorded signal.
(5) Position the rise of the waveform at the middle of the horizontal axis on the oscilloscope screen (see Fig. 4-12).
(6) Press the FF button.
(7) Adjust RV11 on SS-9 Board so that the deviation of the rising edge from the scale center is 0 ± 0.2 μsec.

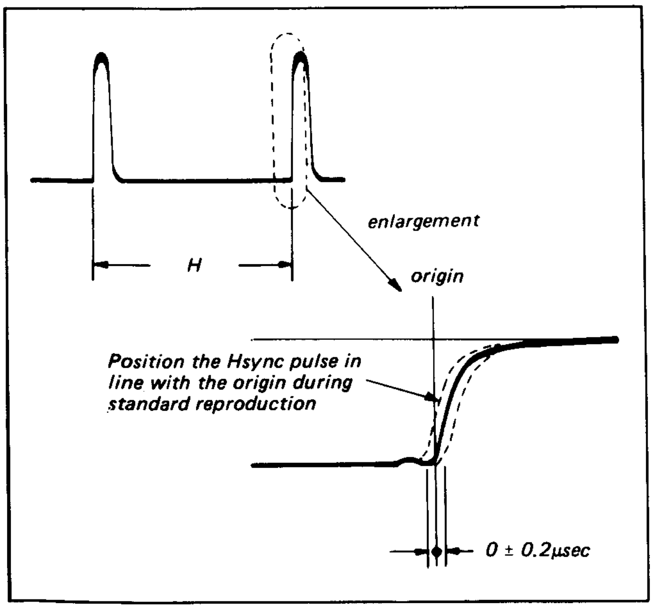

H
enlargement
origin
Position the Hsync pulse in line with the origin during standard reproduction
0 ± 0.2μsec

Fig. 4-12. Adjustment of drum speed compensation during beta scan (CUE/REVIEW)

4-4. VIDEO SYSTEM ALIGNMENT (YC-23 and RF-4 boards)

The adjustment sequence for each circuit board is shown below. The colour video signal used for the video system alignment should satisfy the specification shown in the [Setup for Alignment].

[YC-23 Board]

1. SYNC AGC PRESET Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP8 (pin 24 of IC1).
TRIG: EXT {TP28 (pin 6 of IC5)}

Note: The voltage at TP27 (pin 17 of IC1) is approximately 0 Vdc.

(3) Adjust RV9 so that the colour bar signal is maximum.
(4) Adjust RV1 so that the sync signal level is 340 mV ± 20 mVp-p. (See Fig. 4-13).

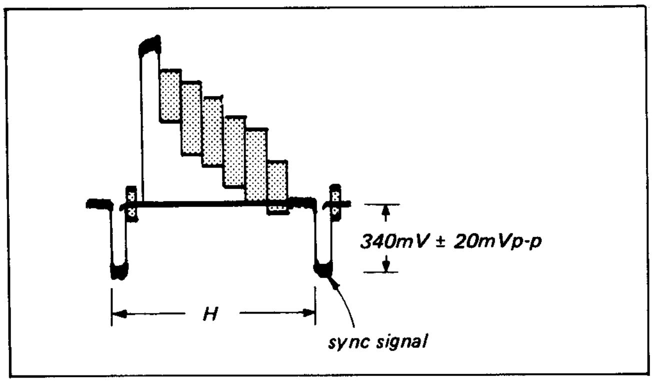

340mV ± 20mVp-p
H
sync signal

Fig. 4-13.

2. Colour E-E Level Adjustment

(1) supply the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP7 (pin 22 of IC1).
TRIG: EXT {TP28 (pin 6 of IC5)}
(3) Adjust RV8 for the sync signal level of 340 mV ± 20 mVp-p. (see. Fig. 4-14).

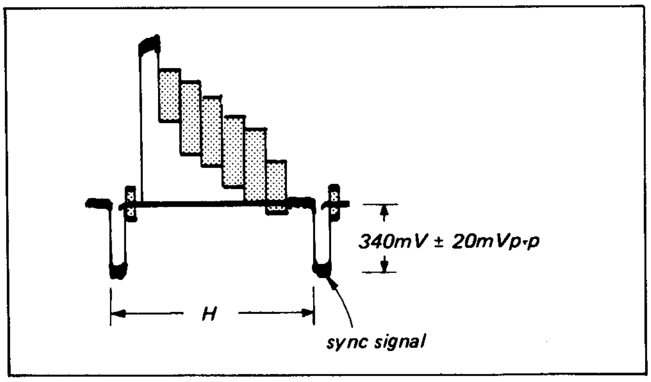

340mV ± 20mVp-p
H
sync signal

Fig. 4-14.

3. Peak AGC (E-E Video Output Level) Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP8 (pin 24 of IC1).
(3) Adjust RV1 for maximum output level of the video signal and then adjust RV9 so that the output level of the video signal becomes 1.15V ± 0.05 Vp-p. (See Fig. 4-15).

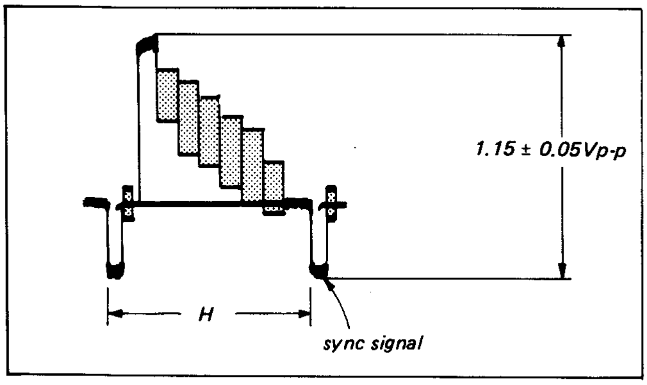


Fig. 4-15.

(4) Perform SYNC AGC adjustment (RV1) after adjustment was finished.

4. SYNC AGC Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP8 (pin 24 of IC1).
TRIG: EXT {TP28 (pin 6 of IC5)}

Note: The voltage at TP27 (pin 17 of IC1) is approximately 0 Vdc.

(3) Adjust RV9 so that the colour bar signal is maximum.
(4) Adjust RV1 so that the sync signal level is 340 mV ± 20 mVp-p. (See Fig. 4-16.)

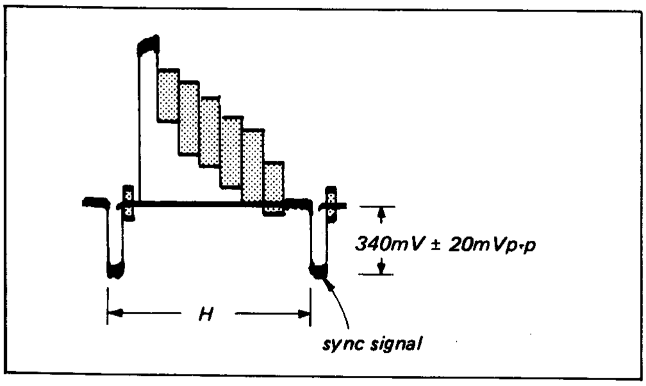


Fig. 4-16.

5. Rec Emphasis preset Adjustment (YC-23 board)

Note: • Confirm that the voltage at TP27 (pin 17 of IC001) is approximately 7.5Vdc and TP8 (pin 24 of IC001) is approximately 0.34Vp-p.

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP4 (pin 16 of IC8)
TRIG: EXT { TP28 (pin 6 of IC5) }
(3) Preset RV4, RV6 and RV7 to the level at which the upper and lower video waveforms are not being clipped.

Note:
1. Connect the oscilloscope to TP1.
2. Confirm that the sync level of the monoscope is equal to the one of the colour bar.
3. If the above step is not satisfied, adjust RV-8.

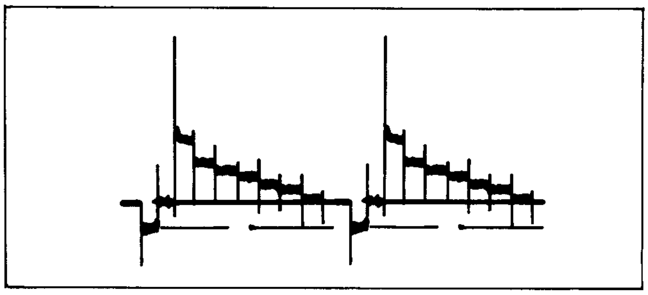


Fig. 4-17.

6. Compress Adjustment

(1) Supply the VTR with colour bar signal and set up the E-E mode.
(2) Connect the digital voltmeter to the points shown in Fig. 4-18.
(3) Adjust RV5 for 0.310 ± 0.004 V dc.

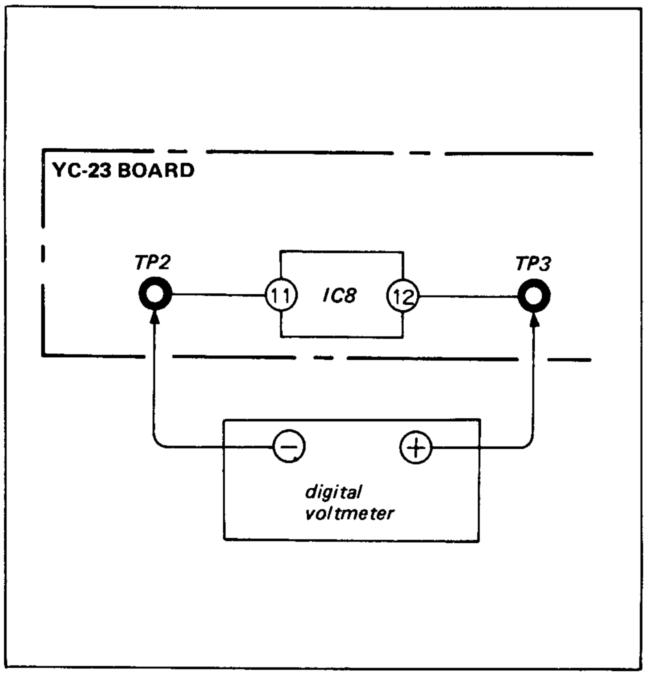


Fig. 4-18. Measurement points

7. Deviation & Car Set Adjustment

(1) Supply the VTR with colour bar signal and set up the E-E mode.
(2) Connect the spectrum analyzer to TP9 (pin 13 of IC1)
(3) Adjust the deviation to 1.4 MHz ± 0.05 MHz with RV2.
(4) Adjust the sync tip section to 3.8 MHz ± 0.04 MHz with RV4.
(5) The adjustment of RV2 may be disturbed by rotating RV4, so if necessary, repeat the adjustment of RV2, RV4 alternately, two or three times.

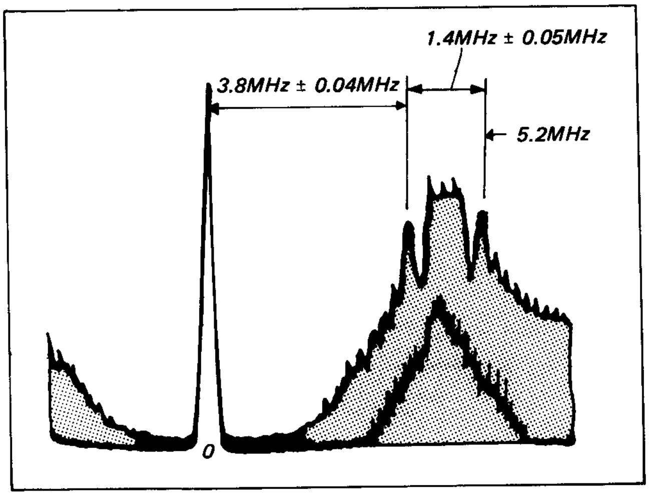


Fig. 4-19.

8. White Clip Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP4 (pin 16 of IC8).

TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV6 so that the signal tip (white peak) is 220% $^{+0}_{-5}$%. (See Fig. 4-20.)

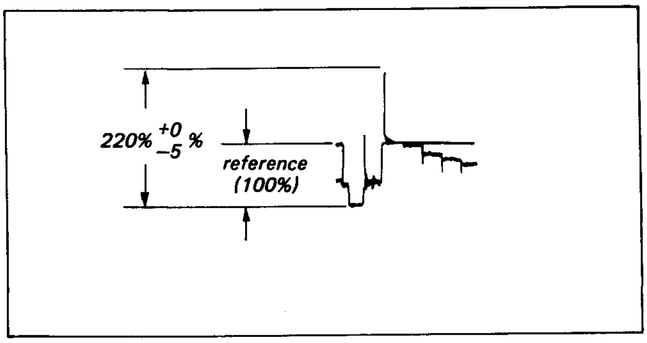


Fig. 4-20. White clip adjustment

9 Dark Clip Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP4 (pin 16 of IC8).

TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV7 so that the signal tip (dark peak) is 170% $^{+0}_{-3}$%. (See Fig. 4-21).

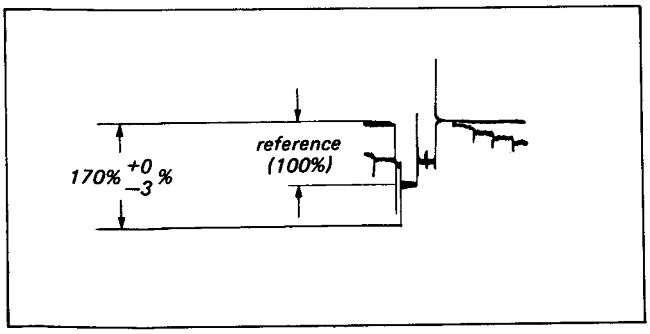


Fig. 4-21. Dark clip adjustment

10. ½fH Shift (RV-7 board)

(1) Do not supply the VTR with any signal and set up the RECORD mode.

(2) Connect the spectrum analyzer to TP9 (pin 13 of IC1).

(3) Adjust RV3 so that the fluctuation of frequency is 7.81 kHz ± 2 kHz.

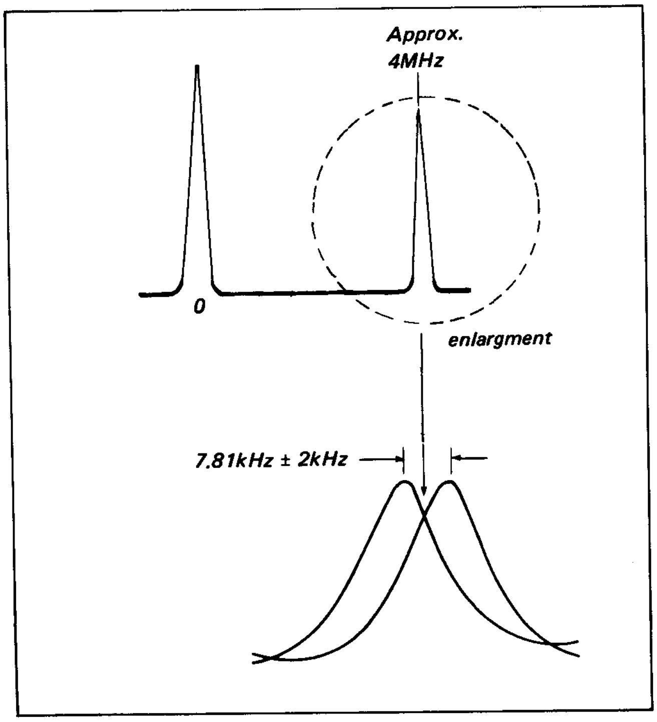


Fig. 4-22.

11. Expand Adjustment

(1) Do not supply the VTR with any signal and set up the E-E mode.

(2) Connect the digital voltmeter to the points shown in Fig. 4-23.

(3) Adjust RV10 for 0.448 ± 0.01 V dc.

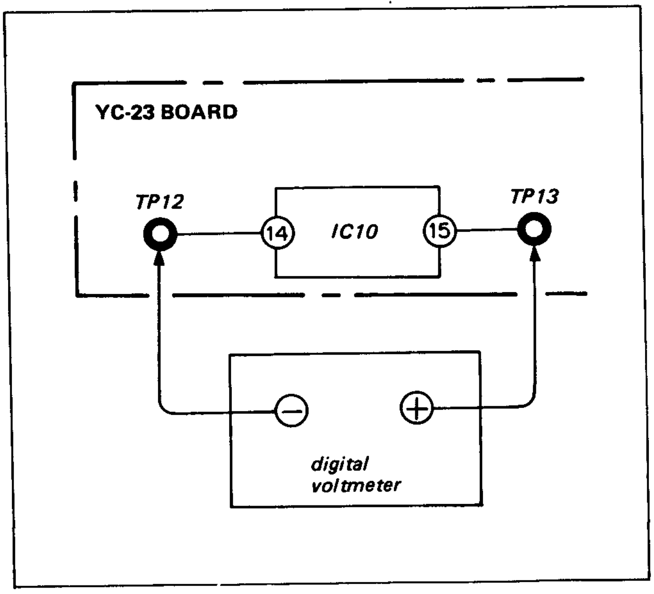


Fig. 4-23. Measurement points

12. AFC Adjustment

(1) Supply the VTR with a colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP29 (pin 5 of IC6).
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV17 so that the lock point is 3.5/8 from the trapezoidal waveform bottom (Fig. 4-24).

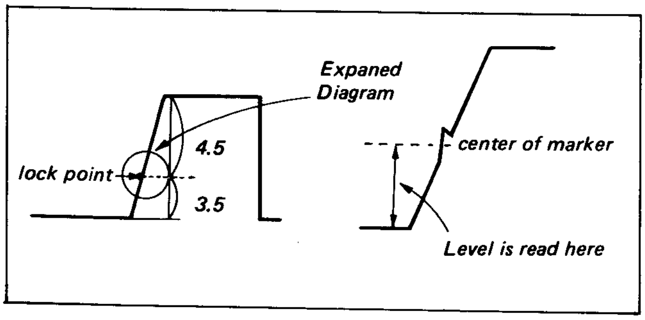

Expaned Diagram
4.5
lock point
3.5
center of marker
Level is read here

Fig. 4-24. AFC adjustment

13. AFC Offset Adjustment

(1) Supply the VTR with the colour bar signal and set up the RECORD mode.

(2) Connect the oscilloscope to TP29 (pin 5 of IC6).
TRIG: EXT (TP30, RF SW PULSE)

(3) Adjust RV18 so that the lock points of the A-CH and the B-CH are at the points shown in Fig. 4-25.

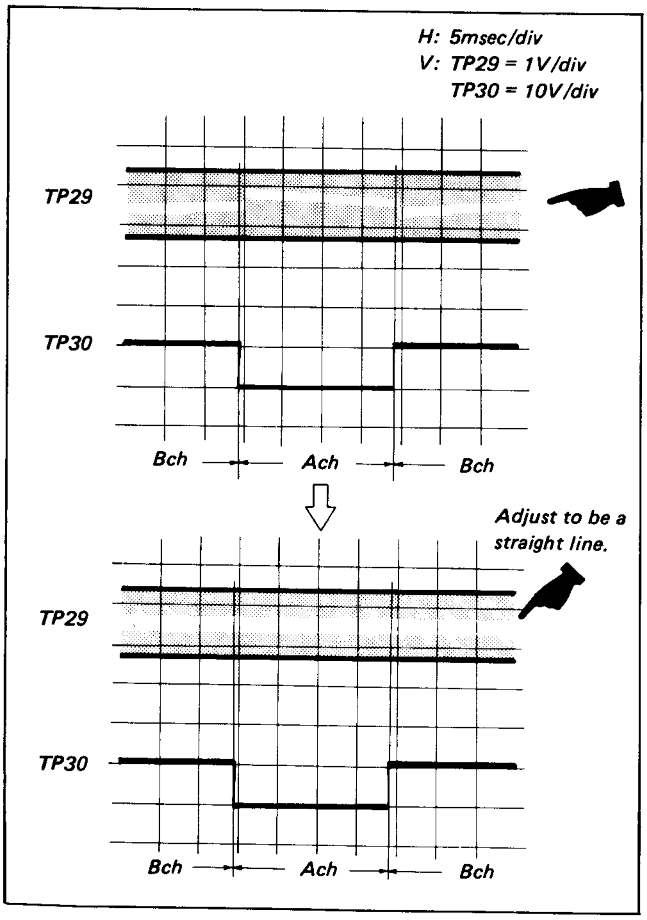

H: 5msec/div
V: TP29 = 1V/div
TP30 = 10V/div
TP29
TP30
Bch
Ach
Bch
Adjust to be a straight line.
TP29
TP30
Bch
Ach
Bch

Fig. 4-25. AFC offset adjustment

14. Comb Filter Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Check that the chroma signal levle at TP20 (pin 8 of IC2) is approximately 1.5 Vp-p. (See Fig. 4-26).
TRIG: EXT {TP28 (pin 6 of IC5)}

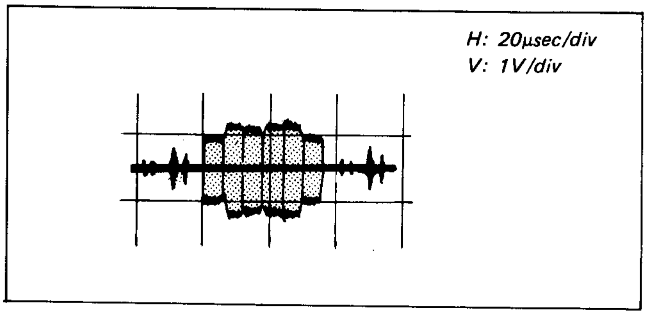

H: 20µsec/div
V: 1V/div

Fig. 4-26. Level check of chroma signal

(3) Connect the oscilloscope to TP21 (junction of R147 and R148).

(4) Adjust LV1 and RV15 alternately for minimum level of the chroma signal. (See Fig. 4-27).

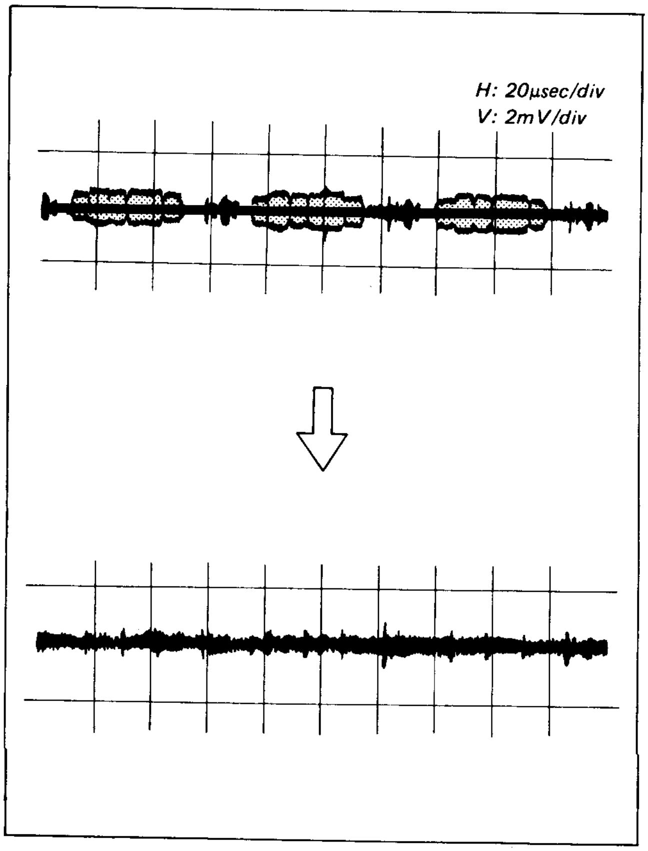

H: 20µsec/div
V: 2mV/div

Fig. 4-27. Comb filter adjustment

(5) Check that the difference in the signal levels at TP20 and TP21 is more than 26 dB after the adjustment.

15. ACC Adjustment

(1) supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP20 (pin 8 of IC2).
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust T4 for minimum output level.

(4) Adjust RV13 for 1.5V ± 0.1 Vp-p. (See Fig. 4-28).

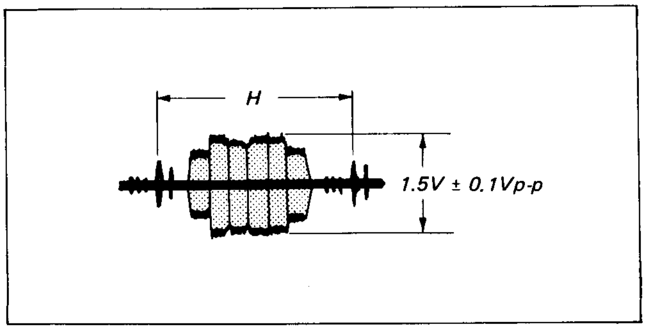


Fig. 4-28. ACC adjustment

16. ACK Set Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope TP19 (pin 9 of IC2)
Input range: DC

(3) When the signal (1 Vp-p) is changed from −17 dB to −18 dB by attenuater, check that the voltage at TP19 (pin 9 of JC2) is become from 4.0V to 0V.
If not, adjust RV12 (See Fig. 4-29).

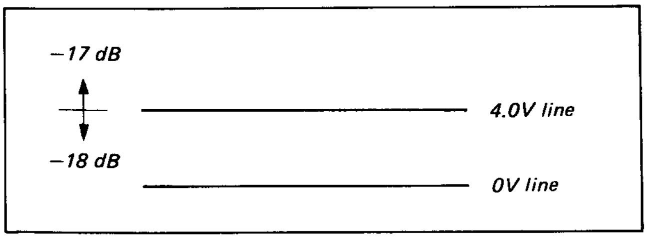


Fig. 4-29. ACK set adjustment

17. X'tal Oscillation Adjustment

(1) Set up the PLAY mode.

(2) Connect the frequency counter to TP23 (emitter of Q34).

(3) Adjust T6 for an oscillating frequency of 4.433619 MHz ± 5 Hz.

(4) Check that the output level is 0.5V ± 0.2 Vp-p (See Fig. 4-30).

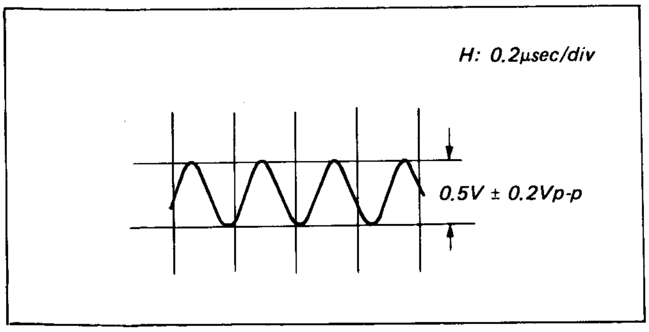


Fig. 4-30. Output level check

18. VXO Oscillating Frequency Adjustment

(1) Do not supply the VTR with any signal and set up the E-E mode.

(2) Connect the frequency counter to TP23 (emitter of Q34).

(3) Adjust T7 so that the oscillating frequency is 4.433619 MHz ± 5 Hz.

(4) Check that the output level is 0.7V ± 0.2 Vp-p. (See Fig. 4-31).

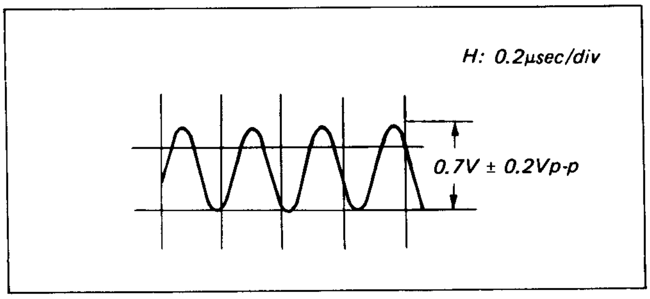


Fig. 4-31. Output level check

19. Carrier Filter Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP18 (pin 24 of IC2).

(3) Adjust T8 and T9 for maximum signal level. (Fig. 4-32).

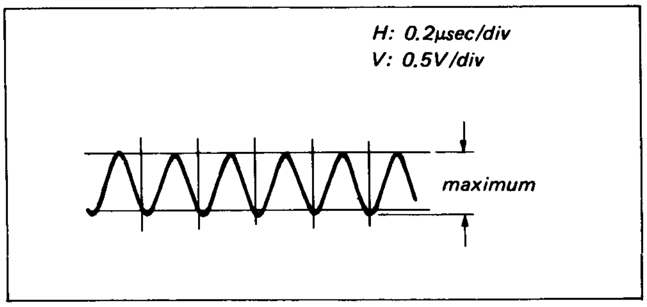


Fig. 4-32. Carrier filter adjustment

20. Pilot Burst Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP6.
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV11 so that the level of the chroma signal becomes equal to the one of the burst signal. (See Fig. 4-33).

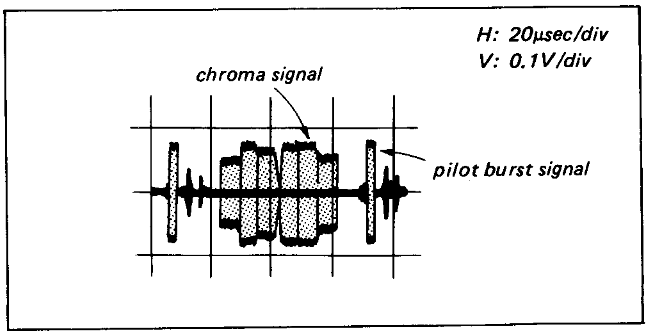


Fig. 4-33. Pilot burst adjustment

21. Chroma Record Current Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP6.
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV16 for a chroma signal level of 0.28V ± 0.02 Vp-p. (see Fig. 4-34).

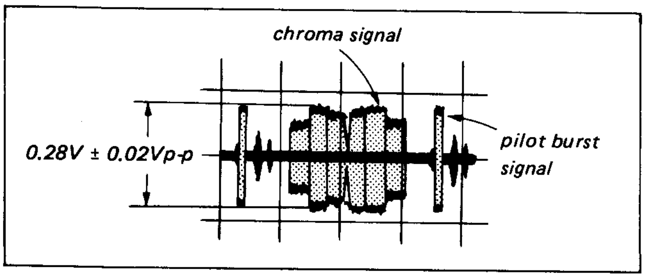


Fig. 4-34. Chroma record current adjustment

(4) Check that the level of the pilot burst signal is 0.28V ± 0.02 Vp-p. If not, adjust RV11. (see Fig. 4-34).

22. Chroma Level Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP27 (emitter of Q40).
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV21 for a chroma signal level of 0.85 Vp-p. (Fig. 4-35).

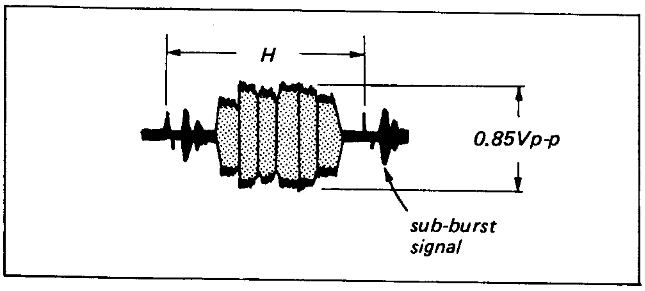


Fig. 4-35. Chroma level adjustment

23. Carrier Balance Adjustment (RV-7 board)

(1) Supply the colour bar signal and set up the E-E mode.

(2) Connect the spectrum analyzer to pin 4 of IC2.

(3) Adjust RV14 for minimum level of carrier lead section (5.12MHz). (see Fig. 4-36).

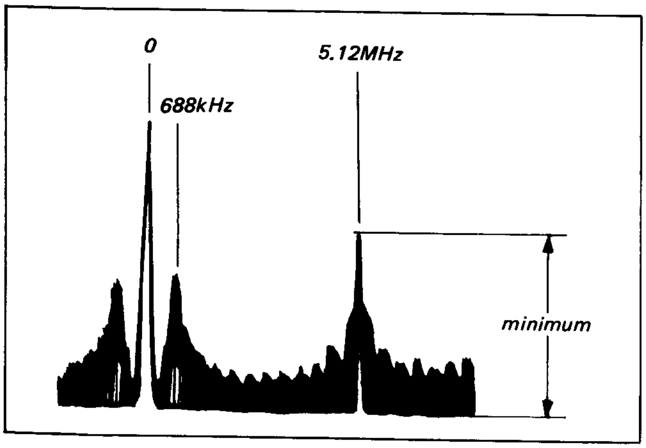


Fig. 4-36.

24. 1H Delay Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the vectorscope to TP25 (pin 8 of IC11.)
TRIG: EXT {TP23 (emitter of Q35)}

(3) Adjust the PHASE knob of the vectorscope for matching the burst signal phase. (see Fig. 4-37).

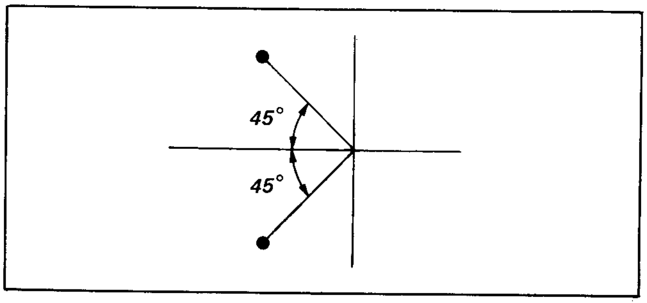


Fig. 4-37. Vectorscope adjustment

(4) Connect the vectorscope to TP24 (pin 9 of IC11).

(5) Adjust LV2 so that the burst signal phase matches the phase of TP25. (see Fig. 4-38).

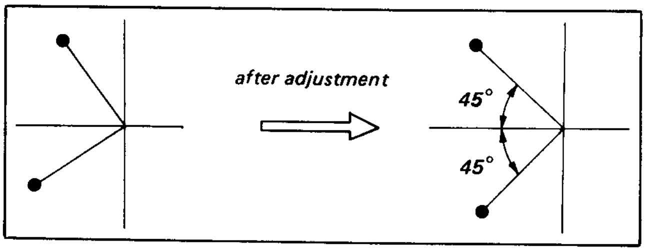


Fig. 4-38. 1H delay adjustment

(6) Connect the oscilloscope as follows.
CH-1 . . . . TP25 (pin 8 of IC11)
CH-2 . . . . TP24 (pin 9 of IC11)
TRIG: EXT {TP28 (pin 6 of IC5)}

(7) Adjust RV19 so that the signal level of the CH-1 is equal to the one of the CH-2. (see Fig. 4-39).

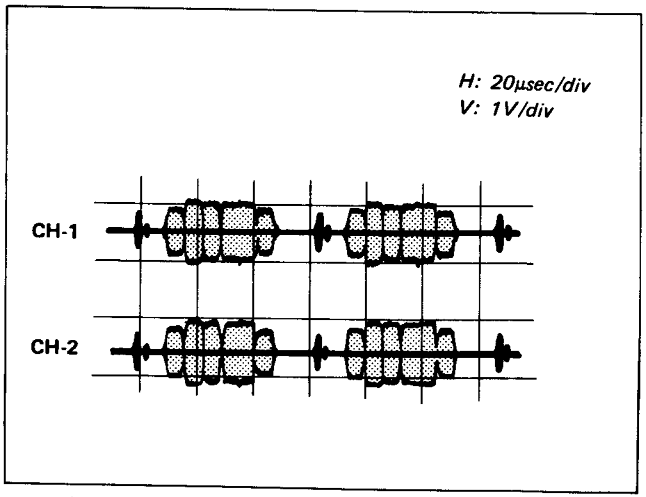


Fig. 4-39. Balance adjustment of chroma signal

(8) The adjustment of LV2 may be disturbed by rotating RV19, so if necessary repeat the adjustment of LV2, RV19 alternately, two or three times.

25. Sub-Burst Adjustment

(1) Record the colour bar signal and play back the recorded segment.

(2) Connect the vectorscope to TP27 (emitter of Q40).

(3) In playback mode, adjust the PHASE knob on the vectorscope so that the burst signal is positioned properly. (see Fig. 4-40).

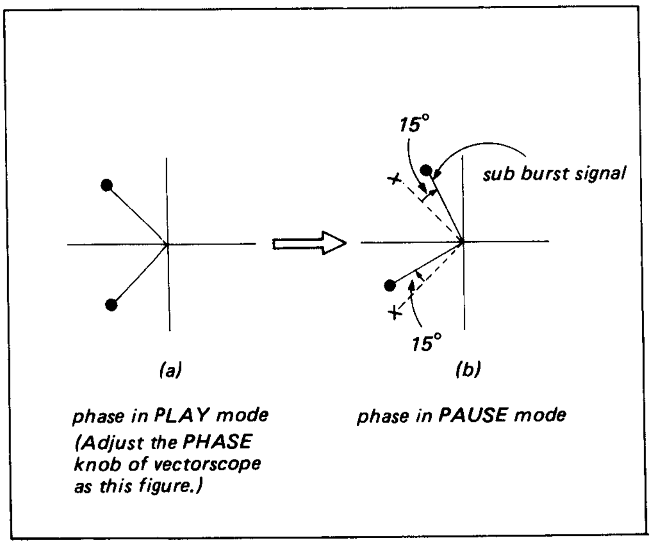

15°
sub burst signal
15°
(a)
(b)
phase in PLAY mode
(Adjust the PHASE knob of vectorscope as this figure.)
phase in PAUSE mode

Fig. 4-40. Playback phase and sub-burst adjustments

(4) Set up the PAUSE mode.

(5) Adjust RV23 so that the sub-burst signal is 15° delayed. (see Fig. 4-40).

(6) Connect the oscilloscope to TP27.

TRIG: EXT {TP28 (pin 6 of IC5)}

(7) Adjust RV22 for the sub-burst signal level of 0.27 Vp-p. (Fig. 4-41).

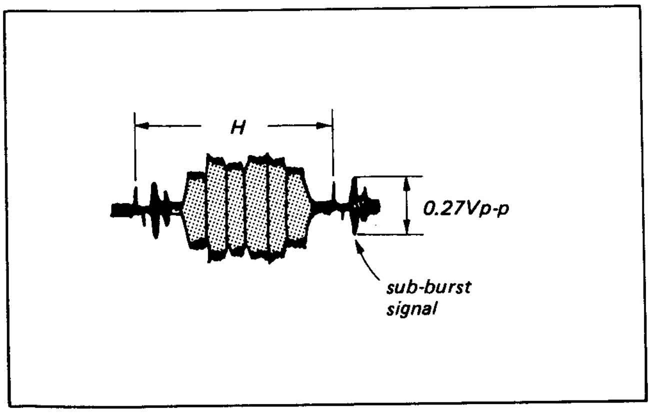

H
0.27Vp-p
sub-burst signal

Fig. 4-41. Level adjustment of sub-burst signal

(8) The adjustment of RV23 may be disturbed by rotating RV22, so if necessary, repeat the adjustment of RV22, RV23 alternately, two or three times.

26. Burst Gate Adjustment

(1) Record the colour bar signal and play back the recorded segment.

(2) Connect the oscilloscope to TP26 (collector of Q43).

TRIG: EXT {TP28 (pin 6 of IC5)}

(3) The waveform shown in Fig. 4-42 or Fig. 4-43 should appear on the oscilloscope. If the waveform is as shown in Fig. 4-42, no adjustment is required. If the waveform is the one in Fig. 4-43, repeat PAUSE and PAUSE release until the waveform in Fig. 4-42 appears.

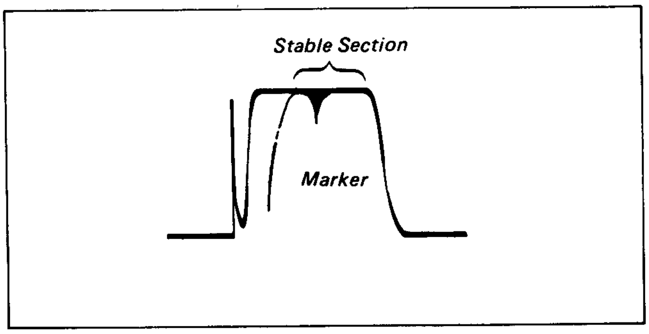

Stable Section
Marker

Fig. 4-42.

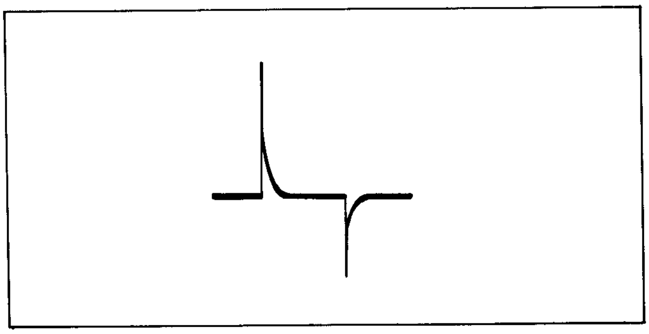


Fig. 4-43.

(4) The trpezoidal wave in Fig. 4-42 is unstable at both sides and overlapping lines are visible. In the stable section where lines do no overlap, there is a marker. Adjust RV20 so that the marker is in the center of the stable section. (see Fig. 4-44).

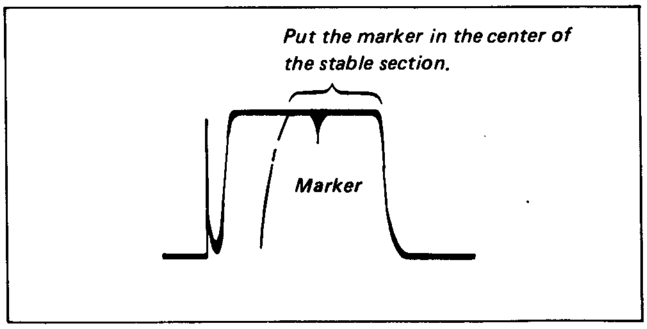

Put the marker in the center of the stable section.
Marker

Fig. 4-44.

[RF-4 Board]

1. Playback Amplifier Frequency Characteristic Adjustment

(1) Play back the RF sweep signal segment of the alignment tape.

(2) Connect the oscilloscope to TP5.
TRIG: EXT (TP3, RF SW PULSE)

(3) Adjust the TRACKING knob for maximum signal level.

(4) Make the signal level from 3.58 MHz to 5.2 MHz flat.
A-CH RV1
B-CH RV2
(see Fig. 4-45).

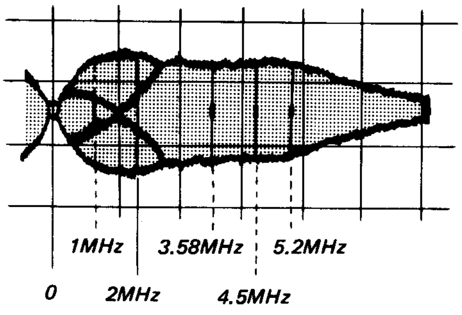


Fig. 4-45. Playback amplifier frequency characteristic adjustment

2. PB AMP CH Balance Adjustment

(1) Play back the RF sweep segment of the alignment tape.

(2) Connect the oscilloscope to TP5.
TRIG: EXT (TP3, RF SW PULSE)

(3) Adjust RV3 so that the 1 ~ 2 MHz levels of Ach and Bch are equal.

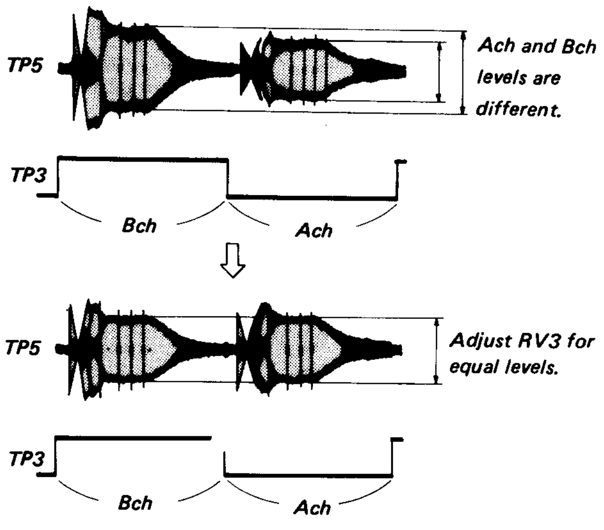

TP5
Ach and Bch levels are different.
TP3
Bch
Ach
TP5
Adjust RV3 for equal levels.
TP3
Bch
Ach

Fig. 4-46.

3. Dropout Compensator Sensitivity Adjustment

(1) Playback recorded tapes selecting portions containing many dropouts.

(2) Turn RV4 fully clockwise, as viewed from the printed side of the board.

(3) Turn RV4 slowly counter-clockwise until dropouts becomes invisible.

(4) Rewind the tape, and play it back again. Check the dropouts appearing before for compensation.

4. Noise Canceller II Adjustment

(1) Record the colour bar signal and play back the recorded segment.

(2) Connect the oscilloscope to TP7.
TRIG: EXT (TP28 of YC-23 board)

(3) Adjust RV7 until the output is a minimum.

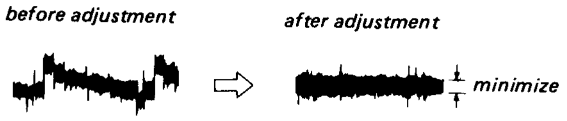


Fig. 4-47. Noise cenceller II adjustment

5. Record Current Frequency Characteristic Adjustment

(1) Set up the no-signal input state and set up the RECORD mode.

(2) Connect the oscilloscope to pin 2 of CN8006 (Signal) and the GND probe to pin 1 of CN8006 (REC 12V).

(3) Adjust RV5 for a signal level of 140 mVp-p. (See Fig. 4-48).

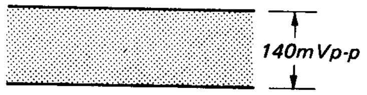


Fig. 4-48. Record current frequency characteristic adjustment

4-5. ADJUSTMENT OF THE AUDIO SECTION

[Connection]

Fig. 4-49 shows how the video tape recorder and measuring instruments should be connected.

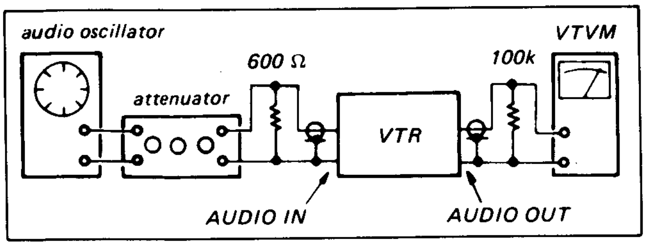


Fig. 4-49. Connection of audio test equipment

[Sequence of adjustments]

(1) Azimuth adjustment
(2) Playback output level adjustment
(3) Playback frequency response adjustment
(4) AGC balance
(5) Recording bias adjustment

Note: Part names enclosed with parentheses are adjustment of CH2. CH1=L (CH2=R). Set the BNR switch to OFF during adjustment of audio system. (except for BNR adjustment)

1. Azimuth Adjustment

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Reproduce the 5 kHz audio signal of the alignment tape.
(3) Maximize the output level with the azimuth adjusting screw provided on the audio head (see Fig. 4-50).

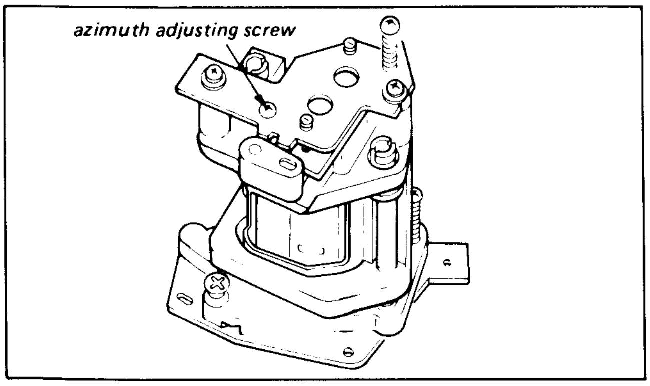


Fig. 4-50. Azimuth adjustment

2. Playback Output Level Adjustment (AD-7 board)

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Playback the 333 Hz audio signal of the alignment tape.
(3) Adjust RV501 (RV601) to read –25 ± 0.3 dB.

3. Playback Frequency Response Adjustment (AD-7 board)

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Reproduce the 333 Hz signal of the alignment tape and write down the output level.
(3) Reproduce the 5 kHz signal of the alignment tape.
(4) Adjust RV506 (RV606) so that the playback output level of the 5 kHz signal become 0 ± 0.5 dB with reference to the playback output level of the 333 Hz signal.

Note: The 3 kHz and 5 kHz audio signals are recorded at –25 dB on the alignment tape.

4. AGC Balance

(1) Apply 333 Hz signal of 0 dB to Audio input of Ch-1 and CH-2.
(2) Set up the E-E mode.
(3) Adjust RV503 so that the level difference between the output level of CH-1 and the one of CH-2 is within 0 ± 0.5 dB.

5. Recording Bias Adjustment (AD-7 board)

Check that playback frequency response adjustment is completed.

(1) Short TP505 and GND with a jumper and turn off AGC.
(2) Apply 333 Hz –40 dBs audio signal to AUDIO IN.
(3) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(4) Depress the RECORD button and record until the counter reading advances 5 or so.
(5) Apply 7 kHz –40 dBs audio signal to AUDIO IN and record it until the counter reading advance 5 or so.
(6) Playback the signals recorded in steps (4) and (5). Measure the playback output level of the 333 Hz signal.
(7) Check that the playback output level of 7 kHz is within +2 ± 0.5 dB of that of 333 Hz. If this level is not read, adjust the bias current with CV501-1 (CV501-2) steps (2) through (7) until the required level is obtained.
(8) After adjustment, remove the jumper connected to TP505.

4-6. ADJUSTMENT OF THE TUNER BLOCK (IF-26 BOARD)

1. Tuner AGC Adjustment

(1) Maximizing contrast, received TV broadcast signal.

(2) Turn RV107 so that snow noise appears on the monitor TV screen.

(3) Turn RV107 slowly in the opposite direction and stop turning it when snow noise has just disappeared.

(4) Receiving a signal on every channel, check that pictures are properly reproduced without being affected by beating due to intermodulation, snow noise, etc.

2. AFC Adjustment

(1) Receive any TV broadcast signal.

(2) Turn off the AFC switch.

(3) Turn PRESET VR so that 1.07 MHz beating appears. Then turn it in the opposite direction and set it so that the 1.07 MHz beating just disappears.

(4) Turn on the AFC switch.

(5) Adjust T102 if 1.07 MHz beating appears or colours are lost.

3. QPT Adjustment

(1) Receive the colour bar signal.

(2) Connect the oscilloscope to CP3.

(3) Adjust T104 so that the leakage of the video signal is minimized. (see Fig. 4-51).

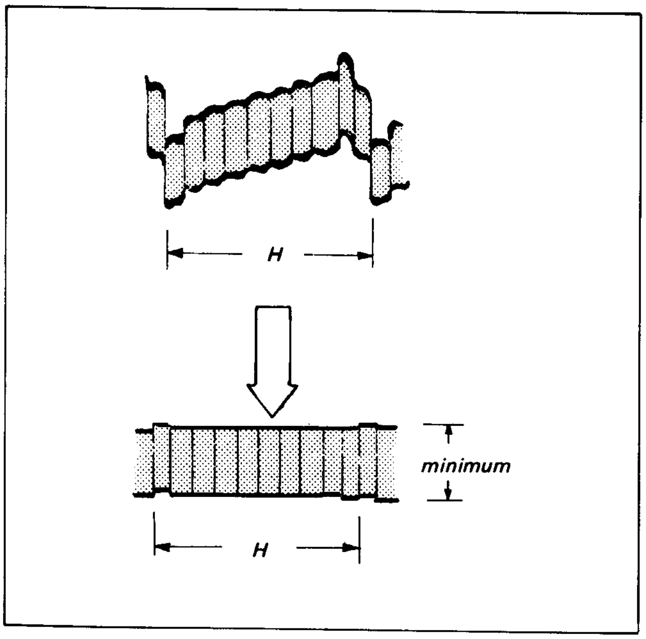


Fig. 4-51.

4. 5.5MHz SIF Adjustment.

(1) Using the A-CH botton, receive the bilingual signal from a television multiplex modulator.
(Press the A-CH botton.)

(2) Set RV147 to the mechanical center position.

(3) Connect the oscilloscope to CP9.

(4) Adjust T103 so that the audio signal level of CP9 is maximized.

5. 5.742MHz SIF Adjustment

(1) Receive the bilingual signal from a television multiplex modulator.

(2) Connect the oscilloscope to CP4.

(3) Adjust T106 so that the audio signal level of CP4 is maximized.

6. Pilot Transformer Adjustment

(1) Receive the bilingual signal from a television multiplex modulator.

(2) Connect the oscilloscope to CP2.

(3) Adjust T105 so that the pilot signal level of CP2 (274.1Hz) is maximized.

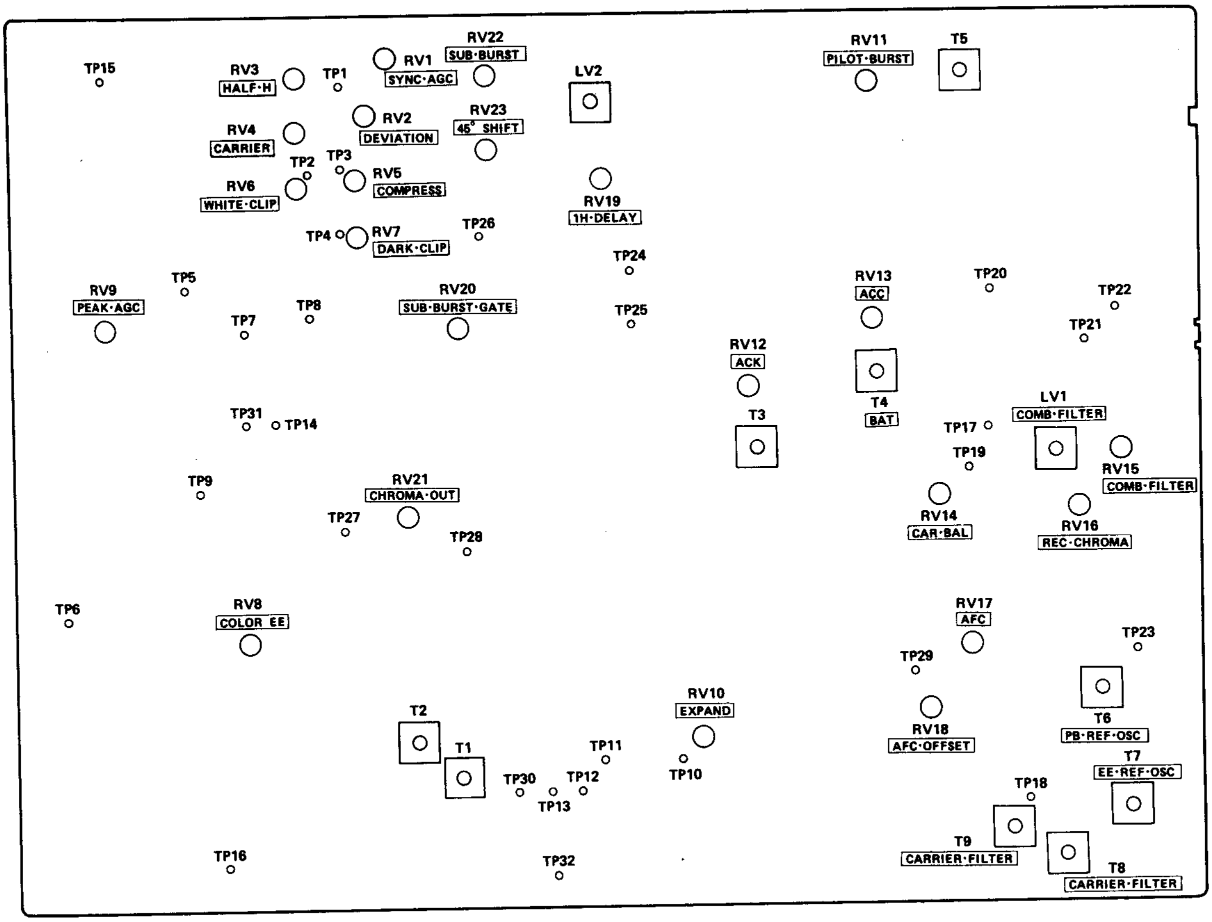
7. Crosstalk Adjustment

(1) Receive the stereophonic signal from a television multiplex modulator.

(2) Connect the oscilloscope to CP9. (CP9: L-CH)

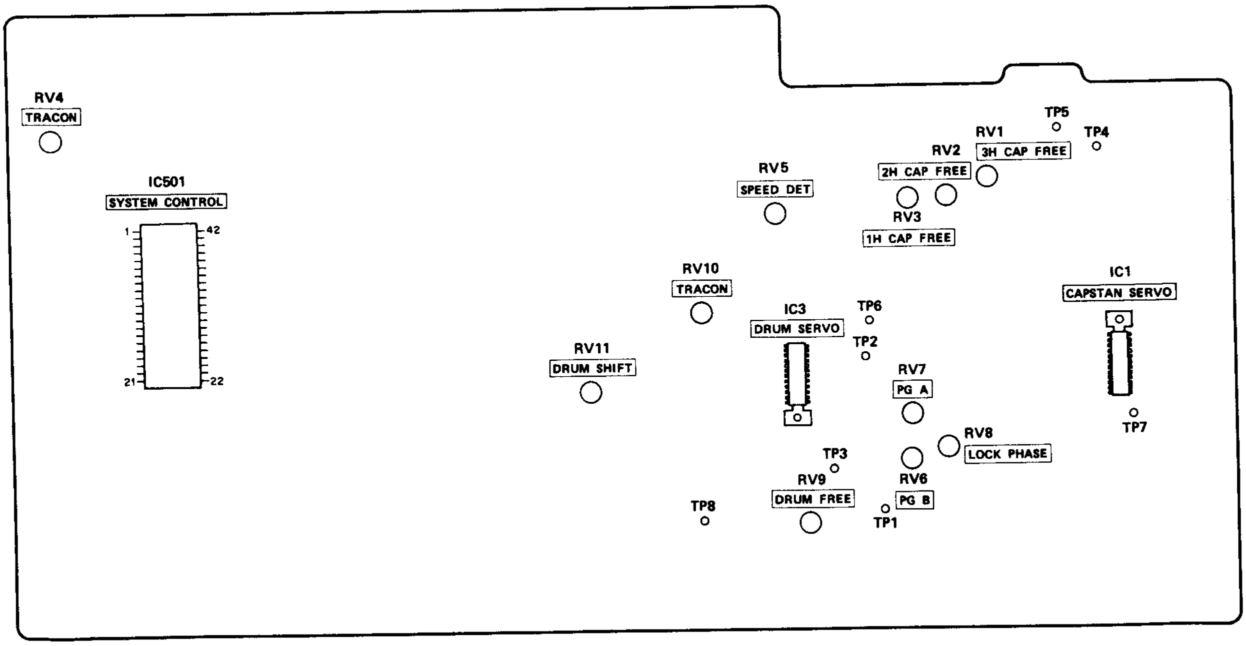
(3) Adjust RV143 so that the crosstalk from R-CH to L-CH is minimized.

YC-23 BOARD ADJUSTMENT LOCATION



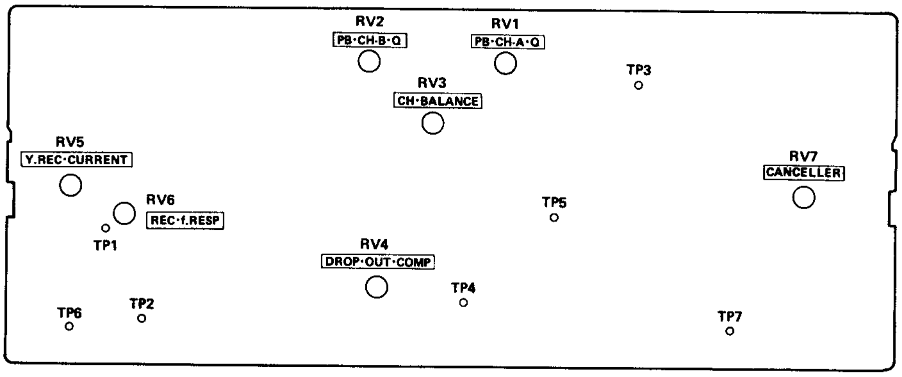
TP15
RV3
HALF-H
TP1
RV1
SYNC-AGC
RV22
SUB-BURST
LV2
RV11
PILOT-BURST
T5
RV4
CARRIER
RV2
DEVIATION
RV23
45° SHIFT
TP2
TP3
RV6
WHITE-CLIP
RV5
COMPRESS
RV19
1H-DELAY
TP4
RV7
DARK-CLIP
TP26
TP24
RV9
PEAK-AGC
TP5
TP8
TP7
RV20
SUB-BURST-GATE
TP25
RV13
ACC
TP20
TP22
TP21
RV12
ACK
T4
BAT
T3
TP31
TP14
TP17
LV1
COMB-FILTER
TP19
RV15
COMB-FILTER
TP9
RV21
CHROMA-OUT
TP27
TP28
RV14
CAR-BAL
RV16
REC-CHROMA
TP6
RV8
COLOR EE
RV17
AFC
TP29
TP23
RV10
EXPAND
RV18
AFC-OFFSET
T6
PB-REF-OSC
T2
T1
TP11
TP30
TP12
TP13
TP10
T7
EE-REF-OSC
TP18
T9
CARRIER-FILTER
T8
CARRIER-FILTER
TP16
TP32

SS-9 BOARD ADJUSTMENT LOCATION

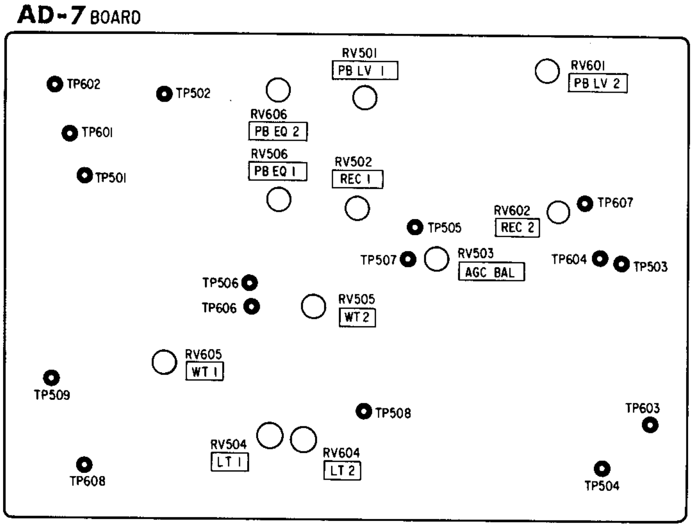


RV4
TRACON
IC501
SYSTEM CONTROL
1
42
21
22
TP5
RV1
3H CAP FREE
TP4
RV2
2H CAP FREE
RV5
SPEED DET
RV3
1H CAP FREE
RV10
TRACON
IC1
CAPSTAN SERVO
IC3
DRUM SERVO
TP6
TP2
RV11
DRUM SHIFT
RV7
PG A
TP7
RV8
LOCK PHASE
TP3
RV9
DRUM FREE
RV6
PG B
TP8
TP1

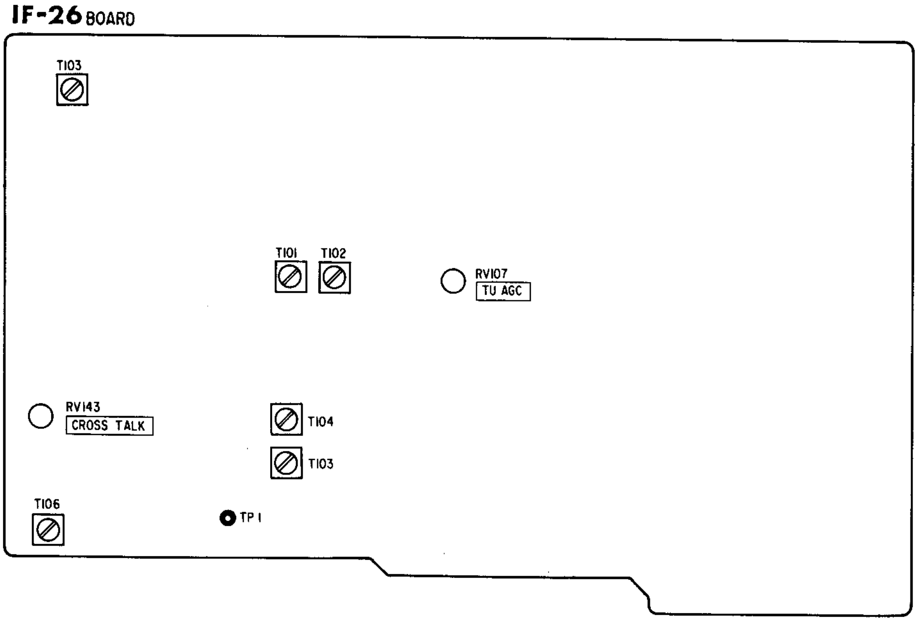
RF-4 BOARD ADJUSTMENT LOCATION


RV2
PB·CH·B·Q
RV1
PB·CH·A·Q
TP3
RV3
CH·BALANCE
RV5
Y.REC·CURRENT
RV7
CANCELLER
RV6
REC·f.RESP
TP5
TP1
RV4
DROP·OUT·COMP
TP4
TP6
TP2
TP7

AD-7 BOARD ADJUSTMENT LOCATION


AD-7 BOARD
RV501
PB LV 1
RV601
PB LV 2
TP602
TP502
RV606
PB EQ 2
TP601
RV506
PB EQ 1
RV502
REC 1
TP501
RV602
REC 2
TP607
TP505
TP507
RV503
AGC BAL
TP604
TP503
TP506
TP606
RV505
WT 2
RV605
WT 1
TP509
TP508
TP603
RV504
LT 1
RV604
LT 2
TP608
TP504

IF-26 BOARD ADJUSTMENT LOCATION


IF-26 BOARD
T103
T101
T102
RV107
TU AGC
RV143
CROSS TALK
T104
T103
T106
TP1